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General Articles

VETERINARY RESEARCH IN THE IRISH FREE STATE*

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The farm animal population of this country, according to the census made on June 1st, 1935, consists approximately of 4,019,000 cattle, 420,000 horses, 12,000 mules and jennets, 153,000 donkeys, 3,042,000 sheep, 121,000 goats, 1,088,000 pigs and 19,485,000 poultry, making a total of 28,340,000. The monetary value of these animals has been officially estimated at £43,000,000. This figure does not include the value of dogs and cats, which must be fairly considerable nowadays, in the case of the former. In 1926 the value of farm animals in the country was estimated at £72,000,000. The export trade in livestock and livestock products realised £32,250,000 in 1930, and £13,153,000 in 1935, while the total agricultural exports realised £43,000,000 and £19,615,000 in the same years, which means that the sales of livestock and their products overseas approximate 70 per cent. of the value of the total agricultural export trade. For the maintenance of this asset, the largest source of wealth in the country, our profession bears a considerable share of responsibility. The freedom of these animals from certain infectious diseases allows them entrance to the markets of Great Britain and other countries, which otherwise would be closed to them, and without which the livestock industry of the country would soon dwindle to comparative insignificance. This state of freedom from these diseases has resulted from the scientific application of measures of eradication and prevention adopted by our profession in the past. The diseases to which I refer are rinderpest, pleuropneumonia, glanders, rabies, foot-and-mouth disease and swine fever. Furthermore, were it not for our profession, existing infectious diseases would, in all probability, become so widespread that livestock production would not be an economic undertaking. In short, the very existence of the biggest industry in the country is dependent on our profession. It appears to me that there are not many people engaged in the industry or outside it who realise that fact, and I submit that the sooner it is more generally known the sooner will the industry benefit.

The purpose of this paper, however, is not to laud the veterinary profession or unduly to stress its importance, but to put before you the nature of the work which still confronts us, and the pressing need for making more adequate provision for the reduction of the wastage from existing diseases. There is still in this country a number of infectious and other diseases of animals which, though not alarming in their severity in any particular locality are, nevertheless, serious in their general economic and public health effects. I refer particularly to tuberculosis, infertility, contagious abortion of cattle, mastitis of cows, diseases of newly-born animals, worm infestations, and certain diseases of sheep, poultry and dogs. It is not possible to estimate with any degree of accuracy the direct and indirect losses from these diseases, but I have roughly calculated the direct losses as being in the neighbourhood of £3,000,000 per annum. At this figure the position is that in an industry capitalised at £43,000,000 there is a preventable annual wastage of £3,000,000 approximately. I ask you, what commercial concern would allow such a state of affairs to continue, and how many shareholders from among our farming community would remain content with a directorate with whom they had invested money, who were responsible for it? Yet our farmers, presumably through ignorance of this loss in their chief source of livelihood, are taking no action to have it checked.

The effects of some of these and other animal diseases on the health of the human population are greater than most people realise. Human tuberculosis of bovine-type infection, for example, has been estimated at approximately 50 per cent. of all non-pulmonary cases of that dread disease. In recent years a number of cases of pulmonary tuberculosis in adult people in Britain have been found to be due to the bovine type of the tubercle bacillus, while in Germany in a group of 40 people affected with phthisis and whose occupations brought them in close touch with animals, 20 per cent. were infected with the bovine bacillus. These findings of bovine-type infection in pulmonary tuberculosis of human beings raise a most important issue. In this respect let me quote the following passage from a paper on "Bovine Tubercle Bacilli in Human Tuberculosis" by

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Bruno Lange of the Robert Koch Institute, Berlin, in the *British Medical Journal* of September 10th, 1932:—

> "Although we must agree with Robert Koch in his demand that the battle against tuberculosis be concentrated primarily against infection from man to man, in view of the much lower frequency of bovine infection as compared with that of human, it is my conviction that the widespread opinion still existing to-day that infection with bovine bacilli is comparatively harmless for mankind must be rejected as having no foundation in fact. I am in this respect in perfect accordance with A. Stanley Griffith, who has been stressing this view repeatedly for many years.
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> "Taking into consideration all the known facts concerning bovine infection, we have every reason to employ all the means at our command to combat this source of tuberculosis in man. We are all the more bound to such a procedure by the fact that we are able to institute much more effective measures against the transmission of bovine tubercle bacilli to human beings than are at our disposal for the prevention of tuberculous infection from man to man."

Again, about 50 per cent. of tuberculosis in dogs—in which animals, by the way, the disease is not at all uncommon—is due to infection by the human type of the bacillus. It is reasonable to deduct that open cases of the disease in these animals are fruitful sources of the disease in people. The incidence of brucellosis in human beings in this country is now being estimated by certain medical authorities. From the information so far available it seems that this complaint is far more prevalent than has been previously thought to be the case. This disease, sometimes known as undulant fever, is, as far as is known, not fatal here, but it is sufficiently serious in its effects to have aroused the medical authorities to investigate it. The source of this disease is, in all probability, cattle affected with contagious abortion. Streptococcal infections of man are rarely traceable to animal sources, but there are a few records of such occurrences arising from milk of cows suffering from streptococcal mastitis. Even though streptococcus-infected milk is not apparently very harmful to human beings, yet the consumption of pus, even in its camouflaged state in milk, is objectionable, and I can assure you from our observations that many people consume quite a large quantity of pus in this way, since pus-laden milk from diseased cows is issued from many milking herds in the country, which are not under close veterinary supervision. Very often this pus is not detectable except by laboratory methods. Another potential source of human diseases is meat and meat products, but thanks to the stringent inspection of meat this source is not a common one nowadays. Certain other diseases in people are contracted by contact with diseased animals, of which affections I may mention variola, ringworm and certain worm infestations.

It is obvious, therefore, both from the financial aspect of the livestock industry and from that of human health, that there is a pressing case for increased veterinary activity in the country. Since it seems that the public are unaware of the state of affairs it rests with us—in fact, it is part of our professional duty to the community—to put the facts before them.

Let us now analyse the existing position regarding the work of the profession and see in what direction deficiencies exist and require immediate attention as far as suppression of some of the more important infectious diseases are concerned. At the present time there are 305 members of our profession engaged in this country. Of these, 100 are occupied solely in private practice and dealing for the most part with the treatment of sporadic complaints and other duties not necessarily concerned with the suppression of infectious diseases. One hundred and twenty-three are engaged chiefly in private practice and partly in controlling infectious diseases under the local authorities. Their duties in the latter capacity do not, however, embody the suppression of the diseases which I have just enumerated, with the exception of tuberculosis—which, as you know, is not being materially altered in incidence by their efforts on account of the defective nature of the Tuberculosis Order, which is the only authorised means by which they can deal with it, outside the Dairies, Cowsheds and Milkshops Order, which is equally ineffective in this respect. There are 29 veterinary officers engaged whole-time by the Government and various municipalities, and occupied chiefly in meat and milk inspection. There are 42 whole-time veterinary officers employed by the Department of Agriculture to perform the duties imposed by the Diseases of Animals Acts. These duties, however, do not include the suppression of the infectious diseases which I have mentioned other than tuberculosis—which cannot but be inadequately dealt with by the only means at their disposal, namely, the Tuberculosis Order. Of the remainder of the profession seven are engaged in teaching, three in the administrative duties, and one, *mark you*, in research. The position is, then, that except for vain attempts to reduce the incidence of bovine tuberculosis, our profession is unable to take any effective steps through lack of necessary facilities, to suppress and eradicate the diseases of greatest harm to the livestock of the country at the present time.

What are the necessary facilities required to undertake the work? Before any measures of disease suppression can be applied, it is necessary to investigate the causation, methods of spread and other factors which influence the occurrence of disease. In other words, research must be undertaken as a preliminary step. The application of suppressive measures will then follow on the lines best indicated by the results of the preliminary investigation. At the present time the facilities for veterinary research here are *ultra vires*, for they are so meagre that they cannot be materially effective. In the official estimates of Government expenditure there is provided under the heading of Veterinary Research a figure of £3,778, but the position is, in fact, that only the salary of one research officer and about £170 are expended on this work. The balance of £3,108 is devoted to laboratory diagnosis and other work of a routine nature. This means that a sum of about £670 only is spent annually in investigating ways and means of preventing a loss through various diseases of £3,000,000 a year. Let us compare this provision with that of other countries in this respect. In Great Britain, with an animal population of 6,538,000 cattle, 16,470,000 sheep, 3,812,000 pigs, 873,000 equines and 61,945,000 poultry, a little over three times the animal population of this country, there are eight Veterinary Research Institutes, employing 52 research workers at an expenditure for which, unfortunately, I have not been able to get a complete estimate, but towards which £32,570 are given by the Development Fund annually. In Northern Ireland, where there are 799,250 cattle, 818,300 sheep, 457,000 pigs, 91,500 equines and 10,086,000 poultry—or approximately one-quarter of the farm-animal population of the Irish Free State, leaving poultry out of consideration—the annual expenditure on veterinary research is £6,719.

The following table illustrates clearly the position in regard to veterinary research in the three countries:—

Country.	Animal population including Poultry but excluding Dogs and Cats.	Monetary value of Animals except Dogs and Cats.	Number of Veterinary Research Institutes.	Professional Research Staff.	Estimated Expenditure on Veterinary Research.	Ratio of Expenditure on Research to value of Animal population.
I.F.S.	28,340,000	£43,000,000	One	One	£3,778 (£670)	1 : 11,382 (1 : 64,000)
Northern Ireland	12,252,940	£14,000,000	One	Five	£6,719	1 : 2,000
Great Britain ...	89,638,500	£100,000,000	Eight	52	£40,000	1 : 2,500

It must be obvious to you, now, that the position in this country in regard to provision for research into animal diseases is in urgent need of attention.

There are some people who, no doubt, will argue that there is no necessity for increased veterinary research here, since this is being carried out in other countries on such a scale as to meet our requirements. While agreeing that the results of work of this sort elsewhere would be of great help to us here, I must point out that measures of control of disease which are found successful in one country are not necessarily successful in others. I need but mention the peculiar divergence of behaviour of the B C G vaccine in such countries as France, Ireland and Canada. Furthermore, while a common factor might be at work in causing a particular disease in different countries it sometimes happens that its effects are increased or decreased by local influences: in this country certain diseases appear to be materially influenced by such factors. Moreover, there are certain diseases here which urgently require investigation and which, so far as I know, are not being investigated elsewhere.

I do not propose to outline in great detail the manner in which steps should be taken to make suitable provision for research here. That is a matter which requires the very careful consideration of Government and other responsible authorities as well as ourselves. I would, however, like to put before you some aspects of this undertaking which are fundamental to success. The first and most essential requirement is, of course, adequate funds. As to how these could or should be raised I am not in a position to make any definite proposal, but I suggest that the nature of veterinary research is not so far removed from that of medical research as not to justify its inclusion in schemes to which monies from the Hospital Sweepstakes are allotted. In Great Britain the funds for the purpose are met partly from the Development Fund, which is a central Govern-

ment fund devoted to the improvement of agriculture and various other industries, and partly from the Agricultural Votes of the Government, and in some cases from other sources. The relationship of medical and veterinary research is so close that the results of the one are generally helpful to the other. Much of the knowledge gained in human preventive medicine, for example, has been obtained from the researches of members of our profession, and in turn we have derived much knowledge from the work of medical investigators. In countries other than this, where there is a better understanding of the scientific status and value of our profession, both professions commonly work together on problems of mutual concern. I have no knowledge of such collaboration here, and to my mind this is a serious defect. I do not wish or mean to convey, however, that veterinary research should become part of schemes devoted primarily to medical research in which veterinary interests are likely to be neglected, but I do think there is work of great urgency awaiting the combined attention of both professions here. I need but mention two diseases requiring such combined attention, namely, tuberculosis and brucellosis. Any work carried out on the prevention of these two diseases by members of our profession is, in my view, as justifiable a charge against funds devoted to the welfare of the health of the people as any for which grants are made at present by the sweepstake authorities. For the investigation of diseases of purely animal concern funds might be made available from sources which will receive the benefit of such work. I have calculated that a sum of at least £10,000 a year will be required for veterinary research here. This amount is not large in comparison to the figures so spent in Great Britain and Northern Ireland. A very small levy on the resources of the livestock industry would supply sufficient money for this without causing any appreciable hardship to the farming community. When the industry is losing £3,000,000 a year from disease, surely one-three-hundredth of this amount would not be an unreasonable figure to apply to the prevention of this loss.

The next requirement for research is a team of experts. Partly-trained or inexperienced workers cannot be expected to produce reliable results, and in fundamental work of this sort the success of investigation depends on the accuracy of the findings. Inaccurate findings are liable to lead to confusion and to mar the whole issue. Such a team of experts should include a biochemist, pathologist and a parasitologist. It is seldom that any one man, no matter how well read or experienced he may be, can undertake the investigation of a disease with the hope of reaching complete results on his own. In most research institutes nowadays there is a group of specialists, each dealing with his or her own branch, and all combining to bring forth a complete result in as short a time as possible. Let us see what some of the research institutes of other countries provide in this respect: At the Veterinary Research Institute of Northern Ireland the professional staff consists of a Director, Assistant Director, one senior assistant and two junior assistants. In addition there are two senior lay laboratory assistants, two junior laboratory assistants, one laboratory attendant, six laboratory boys, two typists, a caretaker and two cattlemen. At the British Ministry's Laboratory at Weybridge there are twelve professional workers and 45 lay assistants. At the Institute of Animal Pathology, Cambridge, there are 16 professional workers and 23 laboratory and other assistants. At the Research Division of Veterinary Services of the Union Department of Agriculture of South Africa there are 32 members of the professional staff.

Finally, it will be necessary to provide suitable laboratory accommodation and equipment, as well as accommodation for animals under observation. Field investigations will, of course, also be required, for no disease can be adequately studied until observations are made locally.

In conclusion, I would strongly urge the profession to give serious consideration to this subject, and I would suggest that this Association should take a determined line of action to procure the necessary facilities for research without delay. The matter is urgent and we would be failing in our duty to the livestock community, in whose interests we are engaged to do our best, if we were to allow the matter to rest any longer.

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Discussion

The discussion on the foregoing paper was opened by Mr. J. F. Timoney, who said: So far as my knowledge goes, this is the first contribution of its kind to be presented at a meeting of this Association, which has been in existence for so many years, and I feel that I am expressing the unanimous wishes of all members present when I sincerely congratulate Professor Kearney on his particular choice from the many subjects on which he could have addressed us. The duty apportioned to me of opening the discussion might have fallen to the lot of abler hands; nevertheless, the function is not an irksome one but extremely pleasant. Research work, irrespective of whether it is industrial or biological in character, has held a great interest for me for many years and for that one reason amongst many others I am deeply thankful to him for his contribution and feel highly honoured by

the Association in being asked to open the discussion on a subject which is of paramount interest to the State.

We have all listened carefully to Professor Kearney's treatise and I am sure the first thought that struck the majority of us was that of disappointment in the sense that perhaps many of us thought we were going to be addressed as to the wonderful feats being accomplished in the realms of research into animal diseases in Saorstát Eireann; but, on the contrary, we were speedily made painfully aware of the fact that research into animal diseases in this State is practically a negative quantity. To my mind—and I feel many will concur with me—an appropriate alternative title for the paper would have been "The Neglect of Veterinary Research in Saorstát Eireann." No doubt as Irishmen and veterinary surgeons we must feel thoroughly ashamed of the almost non-existent state of research into the diseases of our domesticated animals as compared with the facilities and encouragement that are given to similar research in Northern Ireland and Great Britain, and it is certain that the first question anyone genuinely interested in the welfare of the country's assets would ask himself would be, "What is the cause of this apathy towards our greatest industry?"

Agriculture, which is our basic industry, is universally recognised as the soundest industry in any country. It is our greatest employer of labour and constitutes the bulk of wealth of our State. Our livestock have for many years received universal recognition as the finest in the world and that our country is specially endowed by nature in producing such stock is recognised by all. The majority of our tillage crops contribute to the production of farm livestock and their products which, as Professor Kearney has stated, approximate 70 per cent. of the total agricultural export trade. Therefore the question naturally arises, what steps are we taking to conserve the health and mitigate the losses incidental to the life of the principal branch of our basic industry? It is true that some people will argue that there are no diseases of serious economic importance to the livestock industry, in this country, but such opinions can only come from the ill-informed or from those who know better but who wish to pursue the ostrich policy. Professor Kearney has estimated approximately (but rather conservatively, I should say) our wastage from disease in farm livestock at £3,000,000.

With regard to wastage in our different animal species I shall deal first with equine diseases. Professor Craig has estimated that the annual loss in Ireland alone from the inability of mares at stud to produce foals annually amounted to £250,000. This is a very serious state of affairs for the Irish thoroughbred industry when one considers the enormous financial loss accruing from a single disease, namely, sterility. I feel I am quite safe in relegating another £250,000 for wastage from equine diseases other than sterility. Who is there amongst us or in the bloodstock business that is not keenly aware of the devastating influences of such diseases as parasitic infestations, joint-ill, strangles, contagious pneumonia and influenza? I think sufficient has been said to indicate the urgent need of research into equine diseases and especially so when one considers the great asset the thoroughbred horse is to our country.

In connection with the bovine species there is an absolute feast of diseases of fairly high incidence and of very serious economic importance to the State—some solely from the agricultural point of view and others from both the agricultural and public health aspects. The wastage in this species of animal is very high. I need only refer to such diseases as sterility, mastitis and contagious abortion, which only affect mature and adult animals. With regard to young and newly-born animals, to mention only a few diseases there is a high mortality and wastage resulting from parasitic infestations, bacterial enteritis, contagious pneumonia, coccidiosis and joint-ill. Like every other country we have our quota of tuberculosis which, being a disease associated with domestication, shows a high incidence in our best dairying areas. Regarding this disease, our country is ideally situated geographically and favoured by her import trade in livestock for a determined effort to be made for the reduction and, finally, the elimination of tuberculosis from our herds. There are no figures available for the incidence of human tuberculosis due to the bovine type in either the urban or rural areas of this country, hence the man in the street is non-interested and legislation remains as it is. Finally, there is a good deal of clinical evidence in support of the hypothesis that mineral deficiency diseases play a very important rôle in the nutrition of cattle in the poorer inland areas and also along the north-western, western and south-western seaboard.

In conection with wastage due to several of the above-listed cattle diseases inquiries were instituted at the Hannah Dairying Research Institute[1], Scotland, and at Cambridge and Reading, in England, to ascertain the relative importance of the factors responsible for the losses in dairy herds in different areas. These investigations embraced 3,600 cows eliminated from 490 milk-recorded herds in the Scottish and 6,014 cows eliminated from 540 herds in the Cambridge investigations on account of death or for various economic reasons during one year in the Scottish and two years in the Cambridge surveys. In connection with the disposals due to disease the following percentage figures are appended for the different surveys.

	Scotland 1930	Cambridge 1928-29	Cambridge 1929-30
Disease:—			
Failure to breed	17·2	23·7	26·8
Abortion	2·1	3·6	3·8
Udder diseases	15·0	7·0	4·7
Advanced tuberculosis and Johne's disease	5·4	10·4	9·6
Failure in tuberculin test ...	2·8	2·4	1·8
Miscellaneous	15·1	9·4	7·8
Total Disease per cent. ...	57·6	56·5	54·5

It is indeed alarming to note that well over 50 per cent. of the total disposals of animals from herds in the areas surveyed was due to disease and there are no reasons for disbelieving that disease accounts for a similar loss in dairy herds in Saorstát Eireann. With regard to statistics relating to disease in young cattle, there are no figures I can produce relating to Ireland. We are, however, aware of the fact that there is a very heavy death roll and depreciation in stock resulting from parasitic infestations occurring annually. The evidence for this mortality and depreciation is very evident from specimens and communications received at the laboratory from veterinary surgeons. The economic importance of parasitic infestations of cattle in Ireland must be colossal and is a much greater source of loss to the State than all the other contagious diseases. It may also be mentioned that bacterial enteritis of newly-born calves causes an exceptionally heavy mortality in our best dairying centres, losses occurring year after year.

Concerning sheep diseases of serious economic importance in this country these are, again, parasitic worm infestations and louping-ill, both of which are in urgent need of serious and sustained research. I have been particularly interested in the latter disease which, to my personal knowledge, has caused the death of several hundred sheep in two seasons inside a very small area in the Midlands. This loss is occurring yearly and the probability is that the disease is slowly spreading to other previously clean areas, yet facilities and staff are both inadequate to permit of any attempt being made to devise any effective preventive. The flock owners, mostly in humble circumstances, suffer their losses in silence.

In connection with swine diseases, there are tuberculosis—ranging from 12-15 per cent. as revealed on *post-mortem*—contagious pneumonia, deficiency diseases and many others all of great economic importance to the pig producer, who cannot afford in a highly competitive market offering only a narrow margin of profit to have his pigs condemned at the factory either wholly or partially.

I believe I have given you sufficient data as regards animal diseases endemic to this country and of sufficient economic importance to justify at least the making of an attempt towards their cure, prevention or suppression. From the *prima facie* evidence I have laid before you I believe a clear and concise case has been made for promoting and furthering research into the animal diseases of this State as being one permanent way by which we can reduce the farmer's losses and make his livelihood less precarious. Proof that research into animal diseases can bring rich dividends to the livestock owner is not lacking, but I am afraid that very few stockowners realise that the well-known blackleg vaccine so commonly used in this country is a product of veterinary research, likewise braxy vaccine, swine erysipelas vaccine and serum, tetanus vaccine and serum, canine distemper vaccine and serum, milk fever treatment, actinobacillosis treatment, the tuberculin test, the agglutination test for contagious abortion and many other vaccines and tests employed in the prevention or detection of disease. There is another agent very commonly used in this country and which results in the saving of thousands of pounds every year to the State, and that is carbon tetrachloride in the treatment of liver fluke disease, discovered by Harris and Montgomerie. This one discovery should of itself be sufficient to have veterinary research in the Irish Free State adequately subsidised for many years to come. It is no exaggeration to say that the discovery of such a cheap, easily applied and efficient agent should be regarded in helminthological therapeusis as one of the greatest discoveries within recent years.

I wish again to thank Professor Kearney for his excellent exposition of all the facts concerning research in the Saorstát.

Reference

[1]*Lancet* (1931) page 598.

Mr. A. F. O'Dea said that Professor Kearney had not over-stated the incidence of tuberculosis of bovine origin in human beings, and continued: "Griffith found that the bovine bacillus is responsible for 50 per cent. of cases of cervical infection and 82 per cent. of primary alimentary tuberculosis, and Miller, of Edinburgh, holds it responsible for 90 per cent. of cases of cervical tuberculosis in man. Undoubtedly Bang's bacillus causes immense losses from abortion, sterility and diminished milk yield. Such disease conditions as white scour, joint-ill, louping-ill, mastitis, strangles, influenza and parasitic infestations of various kinds are a heavy burden on the agricultural community. Sterility in cows and mares is very prevalent in certain districts. Many breeders of livestock are satisfied with 50 per cent. pregnancies in their mares. This means not only doubling the stud fee, but also the potential loss of valuable winners and stud animals. Strangles has been with us from the dawn of history, and, although not a very fatal disease, is responsible on a low estimate for 15 per cent. of cases of roaring and whistling. In this connection an interesting point arises as to whether an animal affected in the wind as

a result of strangles or influenza should, if coming from sound stock, be excluded from the breeding stud. Mastitis is as great a bugbear to some dairy farmers as is abortion. The sub-clinical form, which is very insidious, is responsible in some cases for 50 per cent. of the yearly eliminations from the dairy herd. The loss here does not end at the difference in value between a dry cow and a cow in milk, because, owing to the heavy drain from this cause, herds cannot be maintained as self-contained ones and the number of on-coming heifers must frequently be supplemented by purchases from outside, thereby rendering the maintenance of tubercle- and abortion-free herds extremely difficult. As a result of parasitic infestations affecting the different species, there is depreciation due to loss of condition and uneconomic unthriftiness as well as the heavy direct losses due to high mortality.

"The poultry industry is a useful asset to this country. How much greater would be its magnitude if such diseases as tuberculosis, coccidiosis, bacillary white diarrhoea and gapes, did not exist?

"In so ably dealing with this important subject Professor Kearney deserves the gratitude of the farmer and stockbreeder as well as of this profession."

Mr. J. D. Whitty, having congratulated Professor Kearney on having brought forward what he described as one of the most valuable papers read for a long time before the members of this Association, proceeded:—

"There is no doubt that the need for further research facilities in the Free State is obvious. We all hope that a strong industrial side of our national economy will arise, but by far our most important asset is agriculture with its livestock and livestock products, the value of which exceeds so greatly that of everything else to our nation.

"The view may have been taken in some quarters that, granted that research was important, advantage could be taken of the labours of research workers in other countries whose findings might be applied to disease conditions here But, as Professor Kearney has pointed out, such reasoning is not sound, for different factors may be associated with apparently similar conditions to those found in other countries. For example, there has been extensive research into the disease known as joint-ill disease of lambs in Britain and other countries. It would not be safe to assume that the same factors are present in this condition in this country as, say, in Britain, even though the disease appears clinically identical, so that measures which might be adopted elsewhere might be useless here. And this is a disease which takes serious annual toll of the lambs on some of our southern mountain ranges. While referring to sheep it may be mentioned that there are other diseases of sheep in this country about which little is known, which cause serious losses, and call for investigation by trained research workers.

"In my opinion, Professor Kearney has underestimated the annual financial losses to agriculturists in this country from diseases many of which could no doubt be prevented if the fruits of proper veterinary research were available. Not only will veterinary research benefit all branches of the profession, but also all classes of the agricultural community, from the owner of the common fowl to the owner of the most valuable thoroughbred. It has already conferred many benefits on the owners of animals. To mention a few—the dog owner has cause to be grateful to Major Dunkin and Mr. Laidlaw for the protection their vaccine gives against distemper. The owner of pedigree fowl has an easier mind since science has devised safeguards against the devastations of pullorum disease, and other avian scourges. Even to-day the owners of valuable horses in this country are indebted to mallein, for no horses are allowed to enter the Free State from foreign danger zones without, *inter alia*, having passed the mallein test.

"As the time is growing late I will only say, in addition, that it is to be hoped that facilities for adequate veterinary research in the wide field offered in this country may soon be provided."

NOTES ON LOCAL ANAESTHESIA*

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My motive in bringing the subject of local anaesthesia before you is two-fold. It is philanthropically to try and induce those practising members of our Association, especially the younger ones, who up to the present may not have employed the method to any great extent, to make more use of it in the future. I also have the selfish object of asking you to make me some return by enlightening me on some points about which my mind is hazy and on others concerning which I am absolutely ignorant.

Rightly or wrongly, I am of the opinion that we do not practise local anaesthesia as much as we should and that we sometimes even inflict pain where it is absolutely unnecessary. It is a branch of our work that, if I may say so, affords great opportunities for propaganda and which can raise us very high in the estimation of our clients. It is also a domain that is closely preserved for the members of our profession and into which the quack dare not enter, even in countries that have not the good fortune to possess a Veterinary Surgeons' Act such as we have in the Free State. We should, therefore, take every advantage of its amenities.

I think no one would prefer to throw an animal and give a general anaesthetic for an operation if with a local anaesthetic he could operate as efficiently, safely and humanely with the patient standing. Of course, every operation does not lend itself to the employment of a local anaesthetic, but by using it there are very many which can actually be performed with more efficiency and with equal safety and humanity.

I have entitled my paper "Notes on Local Anaesthesia" for the reason that I do not consider my experience justifies me to write under a more ambitious caption which might possibly be interpreted as an attempt to give an exhaustive discourse. My object, therefore, is

*Presented to the Veterinary Medical Association of Ireland, at Drogheda, June 27th, 1936.

only to touch on that part of the subject about which I can speak from actual experience.

By the term "local anaesthesia" is meant the loss of sensibility to painful stimuli without the loss of general consciousness.

Drugs

The drugs that I have used at different times include cocaine, novocaine and proprietary preparations such as eucaine, the hydrochloride of urea and quinine, ethyl chloride, novutox and novozyrol.

I employed cocaine hydrochloride for many years and found it most useful. Its disadvantages, however, are that solutions of it do not keep and it must, therefore, be prepared shortly before being used. It is also much more toxic than any of the preparations that are now manufactured.

Novocaine is a most efficient drug, much superior to cocaine in every way. It can be carried in bottles in tabloid form of half- and one-grain strengths. It is used in 2 to 5 per cent. solution which, with the addition of a little adrenalin, is a splendid local anaesthetic. To use either safely, however, water has to be boiled to make the solution and the measure glass sterilised, which necessarily makes them unpopular in this age of "ready-mades." I much prefer such preparations as novutox or novozyrol, which are always ready for use, keep well, are aseptic, do not irritate the tissues or prevent healing, contain a little adrenalin and can be used *ad libitum*. Quite lately I injected nearly 10 c.c. of novozyrol around and under the base of a large tumour which I removed from the shoulder of a dog. The operation was absolutely painless and the patient showed not the slightest ill-effects from such a large dose. I also liked eucaine, but it and the hydrochloride of urea and quinine have now ceased to be manufactured. The latter drug possessed the extraordinary quality of prolonging the anaesthesia of the part for a few days. Ethyl chloride, which is applied as a fine spray, produces its effect by freezing the part. It is not suitable to veterinary work.

Choice of a Syringe and Needles

I have always used the glass and metal "Record" syringe with a capacity of 10 c.c. This can be sterilised by boiling, but the piston must always be removed from the barrel, put in cold water and brought to the boil. After use the piston should again be removed from the barrel and dried before being replaced in the case. The omission of this small precaution may ruin the syringe and cause great inconvenience. The choice of suitable needles is a most important factor in the application of local anaesthesia. For most of our operations a needle about twice the thickness of a human hypodermic needle and half-an-inch long is probably the most suitable. One great advantage of a needle of this length is that when it is pushed under the skin, say, of the leg of a horse, and he pulls up the leg and stamps the foot on the ground, it very seldom falls out. Of course, for certain operations the stem of the needle must be much longer. The best way to carry needles is in a large-mouthed short bottle containing methylated spirit. This prevents rusting and, although not a perfect steriliser, is for all practical purposes efficient. I must confess that I seldom sterilise my syringe and needle by boiling. I generally half fill the syringe with methylated spirit, shake well and then rinse out with hot water. In practising this method for a great many years I can only recall the formation of one abscess.

Methods of Inducing Local Anaesthesia

In veterinary surgery local anaesthesia is induced in three ways:—

(1) By infiltration of the tissues to be operated on by a solution of the drug, as in the removal of a tumour.

(2) By injecting the solution around the nerve trunks supplying the parts, as in the case of firing tendons.

(3) By painting the solution on a mucous surface or on the surface of the eye.

The secret of successful anaesthesia is to employ plenty of the solution and make the injection thoroughly.

Introduction of the Needle

The method of introducing the needle beneath the skin for operations such as firing tendons or a curb is of great importance. If the drug is injected into a blood vessel its effect will be lost. We should, therefore, push the needle through the skin in such a way as to avoid injuring blood vessels, nerves or any underlying structure.

Where the needle is to be introduced a small area should be clipped with curved scissors and sterilised with tincture of iodine. If it is long enough, the hair below the spot is then grasped between the finger and thumb of the left hand and the skin pulled out from the underlying tissues. The needle can then be pushed through without danger. The other method is to pinch the skin at the selected spot between the finger and thumb so as to form a small ridge and then push the needle beneath the epidermis with a quick jab.

Before starting the operation the success of the anaesthesia can easily be tested by pricking the area to be operated on with a pin or needle.

Operations

The operations in which local anaesthesia can be employed are almost innumerable, and

I propose to mention some in which I have used it, in most cases successfully.

(1) Like many other veterinary surgeons, probably, I have on several occasions found it difficult to convince a client that his horse's lameness was in the foot. The blacksmith and he were almost sure it was in the shoulder. The poor shoulder in front and the kidneys behind seem always to be "crying for help"! A little local anaesthetic injected over the two plantars will soon solve the mystery. I inject about 3 c.c. on a level with the buttons of the splint bones, and after about ten minutes test the coronet and heel with a pin before jogging the horse.

For plantar neurectomy the injections are made in the same way.

(2) I had once a very interesting case where a polo pony went suddenly lame on the near hind, accompanied by a marked stringhalt on the same leg. The owner suspected the stifle, but owing to the character of the lameness I thought the foot was the seat of the trouble. I anaesthetised each plantar—which, by the way, is a more difficult little job than in the fore-limb. The lameness completely disappeared in a quarter-of-an-hour and ten minutes later the stringhalt had gone. Both returned a few hours later when the effects of the anaesthetic had worn off, but disappeared after a few weeks' rest in the stable. This suggests the interesting speculation that the cause of stringhalt may sometimes lie in the foot.

(3) I have very seldom had to throw a horse to fire for tendon trouble or curb. For tendons, about 4 c.c. of the solution is injected over each plantar just below the knee where the nerve is covered by the carpal sheath, and the fluid gently massaged downwards. I also inject about 2 c.c. over the centre of the tendon behind on a level with the other two injections. After waiting for a quarter-of-an-hour, if the anaesthesia of the leg is not complete, especially near the fetlock, I give another injection over each plantar half-way down the leg.

(4) A more difficult operation is anaesthetising a curb so as to fire in the standing position.

A twitch should always be applied and the fore-leg held up. Three spots just above the curb and on a level should be clipped and sterilised, one in the centre and one on either side, and about 4 c.c. of solution injected and massaged downwards. The skin at the back of the hock is tight and hard to pinch, which sometimes makes it more difficult to insert the needle than in other regions.

Where plenty of the fluid is injected the operation is invariably a very satisfactory one. Even with a severe twitch and the fore-leg held up there is always a little danger of being kicked while the needle is being introduced under the skin.

(5) I was asked to remove a flat circular tumour, somewhat bigger than a halfpenny, that was growing exactly on the seat of curb of a hunter. Having anaesthetised as for firing a curb, I removed an elliptical piece of skin, including the tumour, as in Cherry's operation on the horse's knee. About an inch on either side of this wound I made two vertical wounds clean through the skin, which allowed the lips of the elliptical wound to be brought together by interrupted sutures. Six weeks later there was no sign of any wound on the back of the hock.

(6) By infiltrating the tissues around them with a local anaesthetic a great many tumours can be removed painlessly from all domestic animals. It is useless, however, to try and anaesthetise deep-seated tumours such as those ill-defined botryomycotic neoplasms often found on the horse's breast. There is no alternative but to cast the animal and chloroform.

Some years ago a client asked me to remove a tumour about the size of a hazelnut that was growing on a hunter's eyelid close to the edge, and, if possible, without throwing the animal. I said I would try, and endeavoured to anaesthetise the eyelid around the growth, having first applied a severe twitch. I was only partially successful in producing anaesthesia, for when I had cut through half the base of the tumour the patient objected very much. I eventually succeeded, however, by repeatedly painting the cut surface with the anaesthetic by means of a camel-hair brush. It was only when I had removed the growth that I realised what a foolish and dangerous proceeding it was. It is wonderful what the enthusiasm of youth will lead one on to attempt!

(7) Mentioning the horse's eyelid reminds me that I once tried to anaesthetise and stitch the torn upper eyelid of a horse. The torn portion was hanging across the eyeball. I succeeded in bringing the parts together with a few stitches, but not satisfactorily. Some days later there was sloughing, the stitches gave way and I had to cut off the torn piece. Had I put the animal down and chloroformed, the operation would probably have been successful. In the few cases I have had since then I have always cast the horse.

(8) To anaesthetise the cornea of the eye for the removal of a foreign body such as a piece of grit or a splinter, or to examine the eye in some very painful condition where the animal keeps the eye almost closed and resents any attempt to open it, I think the best way is to soak a small piece of cotton-wool with the anaesthetic and squeeze some of it behind the lower eyelid. If the lids are kept closed and gently massaged the animal will soon allow the

eye to be opened and manipulated without further objection.

(9) Another operation which can be performed much better in the standing position by the aid of a local anaesthetic is urethrotomy in male cattle. The necessity for operating almost invariably arises from the presence of a calculus in the S-shaped curve of the penis. Although I have had a good many cases of this condition it is not a common one, and if one has not seen a case before, an incorrect diagnosis may easily be made. That was my own experience shortly after I started in practice, with the result that the owner lost a valuable young Hereford bull and I lost whatever little reputation I had as far as the owner was concerned. I subsequently felt anything but happy when, on making a *post-mortem* examination, I found an enormously distended bladder and a calculus somewhat bigger than a green pea in the penis. The owner, despairing of a cure, had had the bull slaughtered to save the carcase. Had I known my job, what a different impression I would have produced and how much I would have enhanced my small reputation by injecting a local anaesthetic over the urethra and by cutting down on to it, making an exit for the urine. The solution should be injected exactly in the middle line of the perineum, where the urethra turns round the ischial arch of the pelvis. Although I fear I am trespassing in the domain of surgery, perhaps I will be forgiven if I mention that the principal symptoms of this trouble are switching of the tail, protrusion of the penis, restlessness and kicking with the hind feet, the suppression of urine and a distended bladder.

(8) We have to thank Professor Browne for more than once giving us a demonstration of the epidural operation, which I am sure many of us have found so useful in difficult calving cases due to the os uteri not being sufficiently relaxed, and also in returning the uterus in cases of eversion.

Last year I was asked by a horse dealer to see a charger that had got cast in the stable and in his struggles during the night had everted his rectum about six inches. The bowel had become very oedematous and injected. By smearing it with vaseline and pressing gently, it was easily returned, only to be shot out again immediately when the hand was withdrawn. I decided to try the epidural operation and injected 5 c.c. of novozyrol between the sacrum and first coccyx. A quarter-of-an-hour later I again returned the bowel, which the horse now retained and never tried to evert again.

I would like to refer to many other operations where I have employed local anaesthesia, in most cases successfully, but I have already digressed too long in many directions. I shall, therefore, simply mention these conditions: median and ulnar neurectomy, to stitch torn shins of cows, trephining the sinuses of the horse, stitching torn nostrils of the horse, removing splinters of wood that had disappeared under the skin of the legs of horses, tracheotomy, peroneal tenotomy for the relief of stringhalt, the periosteotomy operation for the cure of spavin, and the removal of the clitoris of the mare.

In conclusion, may I hope that my meagre and inadequate contribution entitles me to ask you to consider local anaesthesia one of the sheet-anchors of our practice.

Abstracts

[The Value of Tuberculin Testing and of Bronchial Mucus Examination in Tuberculosis Control. Rautmann, H. (1935.) *Deuts. tierärztl. Wschr.* **43.** 6. 89-93.]

The author compared the diagnostic value of the tuberculin test and of the examination of bronchial mucus for the presence of tubercle bacilli in 249 cattle belonging to seven herds. In 61 cases (24 per cent.) bronchial mucus was shown to contain tubercle bacilli by guinea-pig inoculation; of 92 clinically suspicious cases, 44 (48 per cent.) showed the presence of tubercle bacilli, and of 147 unsuspected animals 17 (11 per cent.) gave similar results. The *post-mortem* lesions in 12 of these 17 cases are described. One hundred and fifty-five of these cattle were tested by the ophthalmic test and 51 per cent. gave a positive reaction; 94 were tested by the intradermal test and 93 per cent. reacted. The author points out that the only value of bronchial mucus examination for the control of tuberculosis is for the detection of so-called "open" cases in badly infected herds.

S. J. E.

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[Uncomplicated Fowl Coryza. Nelson, J. B. (1935.) *J. Amer. Vet. Med. Assoc.* **86.** 3. 409-418.]

This is a specific infectious disease that may be induced experimentally by the intranasal instillation of exudate from field cases. There appear to be two types of the disease: (1) a coryza of rapid onset with an incubation period of one to three days, and (2) a coryza of slower onset taking nine to 27 days.

A Gram-negative haemophilic bacterium is constantly present in the coryza of rapid onset, though it does not appear to be associated with the coryza of slow onset. The experimental disease is spread by direct but not by indirect contact. Recovery from coryza produced by exudate is followed by temporary resistance. On the other hand, recovery from coryza produced by pure cultures of the organism gives rise to resistance against the organism, but only

to partial resistance against infection with the exudate. Intraperitoneal inoculation of the organism alters the susceptibility of the bird to subsequent intranasal inoculation though no inflammatory reaction follows the intraperitoneal inoculation.

The author is not prepared to state what the causal agent of this condition is, until the discrepancies between the infections set up by the exudate and by the organism alone are elucidated. D. L. H.

* * * * *

[**Environment and Poultry Diseases.** Van Es, L., and Olney, J. F. (1935.) *J. Amer. Vet. Med. Assoc.* **86.** 3. 390-406.]

This article is the summary of an extensive investigation into the influence of environment on poultry diseases.

Poultry were kept under (1) ordinary farmyard conditions, that is, in immediate contact with the soil, the food and water being in open containers, and (2) under sanitary conditions, the yards being covered with 12 in. of gravel, wire netting on frames covering the floors of the shelter-houses, and the food and water protected from faecal contamination.

The effect of environment on the following diseases was studied: bacillary white diarrhoea, blackhead of turkeys, tuberculosis, fowl cholera, coccidiosis and fowl typhus (*S. gallinarum*). In each experiment an equal number of "clean" birds was introduced into both types of run, and flock infection started by the introduction of infected birds or infected material. The experiments on each disease were carried out in separate runs.

Bacillary White Diarrhoea.—The object in these experiments was to determine whether infection was transmitted from positive reacting to non-reacting adult birds. There was no substantial difference of the reaction incidence of either lot.

Blackhead in Turkeys.—The proportion of cases in the sanitary lot to those under insanitary conditions was 1 : 14·77. The authors consider that sanitary conditions may be a limiting factor in this disease.

Tuberculosis.—When the runs were populated with mature birds infection did not appear to spread. However, using young birds, the incidence in the sanitary runs was 14·6 per cent and 14·43 per cent. in the insanitary runs.

Fowl Cholera.—The character of the environment apparently exerted no influence.

Coccidiosis.—After altering the feeding equipment in the sanitary runs to exclude all possible faecal contamination the fowls under these conditions showed an advantage over those not under such conditions.

Fowl Typhus.—In this disease the advantage also lay with those birds under the better conditions. D. L. H.

[**On the Disinfection of Poultry Houses by means of Fire Guns.** Stafseth, H. J., and Camargo, F. (1935.) *J. Amer. Vet. Med. Assoc.* **86.** 2. 162-167.]

The results of these workers' experiments on the efficacy of the blow-pipe as a disinfecting agent are interesting in that they throw doubt on the widespread belief in its usefulness.

Marked-off areas on concrete floors were flamed for from 2·5 secs. to 15 secs., and then sterile swabs were rubbed over the area and inoculated into nutrient broth. A similar procedure was adopted after chicken droppings containing *S. pullorum* had been smeared on the floor. In all cases growth occurred. (Controls appeared to be adequate.)

The authors conclude that the method is impracticable and inefficient.

D. L. H.

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[**Duck's Egg and Food Poisoning.** Miessner, H., and Köser, A. (1934.) *Deuts. tierärztl. Wschr.* **42.** 45. 717-720. (1 fig, 1 table, 15 refs.).]

The authors describe an outbreak of food poisoning due to the consumption of ducks' eggs. *Salmonella typhi-murium* (*Bact. aertrycke*) was recovered from the stools of patients and from one out of eight eggs from the same source as the original batch used for food.

Cultural examinations of the droppings of the ducks were negative, but the blood of four of the birds agglutinated both the homologous strain and a type strain up to 1 : 100. The ducks appeared normal, but when killed lesions of the ovaries were noted in two of them. The organism was recovered from these lesions.

P. S. W.

* * * * *

[**The Effect of Milk as a Food upon the Leucocyte Formula of Man.*** Kouchakoff, P.]

In a previous report, at the First International Congress for Microbiology (1930), the author stated that alimentary leucocytosis did not represent a physiological phenomenon, but was pathological, *i.e.*, it was to be regarded as a method of defence on the part of the organism against the introduction of foodstuffs that were not natural, but altered by high temperatures and complicated methods of manufacture. Further experiments on milk have shown that its critical temperature was 88°C. at sea level: if this temperature is exceeded, milk loses its natural properties and causes an increase of leucocytes. On adding to milk certain manufactured products, such as cane-sugar, not only is the number of leucocytes increased, but a change takes place in the percentage of the various types of white cells.

*Abstract of communication made to the Second International Congress for Microbiology, London, July 25th-August 1st, 1936.

Milk containing an abundant bacterial flora, both saprophytic and pathogenic, as well as milk from tuberculous animals, has no effect upon the leucocyte formula of man.

If milk has become altered, its original properties can be restored in the following manner: (1) if the change was due to overheating alone, (*a*) by addition of 5 to 10 per cent. raw milk, or of any other raw product the critical temperature of which is equal to that of milk (88°C.) or higher; (*b*) by keeping the milk exposed to air for 24 hours; (*c*) by addition of microbes (sour milk, yoghourt, etc.).

(2) If cane-sugar is added to boiled milk, the reaction of the organism to this mixture can be prevented only by adding to it three raw products, provided their critical temperatures are different.

(3) The natural properties of milk cannot be restored by any method if it has been heated under higher pressure than atmospheric.

The author's investigations have led to the following conclusions: (1) Natural milk and all its derivatives (cream, butter, cheese, sour and dried milk†—pure or with admixture of lactose) do not alter the leucocyte formula of man; (2) boiled and condensed milk, with admixture of cane-sugar, or other prepared products, cause a change in the leucocyte formula, thus representing unnatural foodstuffs, assimilable with difficulty; (3) the alteration of the leucocyte formula can serve as a test for the differentiation of natural from adulterated foodstuffs, applicable to the examination of market products; (4) the leucocyte formula provides no clue for determining whether the milk originated from healthy or diseased cows; and (5) the examination of milk from tuberculous cows in all stages of the disease failed to reveal the presence of tubercle bacilli, either microscopically or by inoculation of guinea-pigs; therefore, the risk of human infection through consumption of raw milk must be very limited.

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[Viability of Micro-organisms in Air.* Wells, W. F., *et al.*]

This paper summarises studies that have been in progress at Harvard University during the past five years. Using a simplified technique of air sampling which employs an air centrifuge to precipitate micro-organisms from a measured volume of air directly on to a solid nutrient medium or into broth or a saline solution, studies have been made of the viability of micro-organisms in air. These include (1) the sampling of air infected artificially by atomising into the air a liquid containing pure cultures of micro-organisms and (2) the sampling of air in occupied spaces, such as schoolrooms, clinics, operating rooms, hospital wards, theatres, factories and experimental chambers. Droplets less than 0·1 mm. in diameter when expelled into the air evaporate to dryness in a shorter time than required to fall the height of a man. The nuclear residues drift in the air for long times and long distances with the slightest air currents. The viability of the microbiological population of these nuclear residues is appreciable. *Pneumococcus* Type I, *Corynebacterium diphtheriae*, *Streptococcus haemolyticus* and *Streptococcus viridans* have been recovered from the air of a still chamber 48 hours after artificial infection of the air; typical intestinal bacteria disappeared in twelve hours. Dysentery phage and the virus of human influenza has been recovered from artificially infected air. Typical naso-pharyngeal organisms have been recovered from the air of occupied spaces.

The effect upon viability produced by humidity, ozone, a spray disinfectant and ultra-violet light has been studied. The viability of the organisms so far employed decreases with decreasing humidity. The destructive power of ultra-violet light is of appreciable magnitude even at considerable distances and is proportional to the light energy intercepted by the living organisms. The effect of ultra-violet irradiation has been determined for a number of different types of organisms.

* * * * *

[Bacteriological Control in the Manufacture of Meat and Fish Pastes.* Crossley, E. L.]

The bacteriological problems involved in the production of meat and fish pastes have been studied; the method of processing employed was preservation by heating in hermetically-sealed glass jars.

Since 1932 bacteriological examinations have been made of 14,365 jars of paste from various sources. Of these, 12,624 (87·9 per cent.) were sterile; 1,726 (12·0 per cent.) contained living spores of various common aerobic bacilli, mainly *B. subtilis* and *B. megatherium*, and 15 jars (0·1 per cent.) contained spore-forming anaerobes of the *Cl. sporogenes* and *Cl. putrificus* types. An extremely heat-resistant strain was isolated.

Experimental and practical evidence was obtained which showed that the anaerobic bacilli were the main cause of spoilage—an uncommon defect—though development of these organisms is irregular. Aerobic spore-forming bacilli when present alone could not bring about spoilage within a sealed jar, but their presence indicated that the margin of safety was very small.

*Abstracts of communications made to the Second International Congress for Microbiology, London, July 25th-August 1st, 1936.

†The experiments with dried milk were carried out with the products of the Swiss firm Guigoz S.A., manufactured at low temperatures.

The chief causes of possible failure encountered were:—

(1) Imperfect sealing of the jar.

(2) Imperfect processing of the jar, due to:—

(*a*) Excessive numbers of bacteria in the paste before processing, derived either from the raw materials or added as a result of faulty methods of preparation. Careful bacteriological tests of all materials and equipment were found highly desirable.

(*b*) Employment of too low a processing temperature or too short a heating period. Heat penetration to the centre of the jars should be confirmed by the use of a suitable thermo-couple. Another satisfactory method employed was experimental processing of jars of paste heavily inoculated in the centre with cultures of *Cl. sporogenes* and *Cl. putrificus*.

(*c*) Uneven distribution of steam in the retorts, which could be discovered by placing maximum thermometers in various situations.

(*d*) Failure of the human operator or automatic regulator, or fluctuations of steam pressure.

For satisfactory control it was found *essential* to make bacteriological examinations of representative samples drawn from every batch processed. A new medium was developed containing skim milk, peptone and bromocresol purple, and a method of testing worked out which enabled both anaerobes and aerobes to be detected very simply, rapidly and accurately without the use of elaborate apparatus.

* * * * *

[**The Microbiology of Canned Foods.*** Tanner, F. W.]

Perishable fresh foods are preserved for short periods of time largely by refrigeration. This does not destroy micro-organisms but does inhibit their activities. Quick-freezing during the past decade has been extended to a wide variety of foods. Such foods are perishable and must be handled under conditions which will keep them frozen until about ready for preparation for the table. This is necessary both to keep them in sound condition and to prevent development of food poisoning organisms.

Canned foods have assumed a position of great importance in many countries. Much research on rate of heat penetration into containers, times and temperatures for processing, and other problems has resulted in products which not only keep well under storage conditions generally found in commerce but which are safe.

Canned foods have generally been defined as sterile foods in a hermetically-sealed container. Much evidence has been accumulated which indicates that such a definition cannot be maintained. The expression "commercial sterility" has been suggested in its place. That many satisfactory canned foods contain viable micro-organisms is now well established. Some 10 per cent. of various canned meat products and 24 per cent. of canned corn are known to harbour viable micro-organisms; over 50 per cent. of cans of pineapple, according to a recent paper, are not sterile. Similar statements may also be made for other foods.

A situation now under study is the presence of bacteria usually considered to be non-heat resistant (coccus-forms) in such canned foods as meats and meat products. The conditions in the can which allow such bacteria to survive should be determined. For about ten years, factory-canned food has not caused botulism in America. Home-canned foods, however, continue to take their toll of botulism each year.

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MARKING OF REACTORS: MINISTRY'S BAN

At a meeting of Herefordshire Diseases of Animals Committee it was stated that application had been made to the Ministry of Agriculture for permission to place a distinctive mark upon reactors to the tuberculin test, but that the application had been refused.

The County Veterinary Officer said that he could only take action where cows re-acted clinically to the disease. He would be liable to action for damages if he interfered with cows on other grounds. Farmers, he added, were unwilling to have their cows marked.

Reports

KENYA COLONY AND PROTECTORATE

REPORT OF THE DEPARTMENT OF AGRICULTURE FOR 1934

This report is published in three volumes. Volume I consists of the Director's own report on agricultural progress during the year, together with the reports of the two Deputy Directors in charge of Plant and Animal Industries respectively. Volume II contains the reports of the various specialists in the Plant Industry Division, while Volume III consists of the reports of the Chief Veterinary Research Officer, the Improvement of Native Animals Section and the Agricultural Economist.

Out of a total expenditure of £128,803 on the Department for the year, nearly one-half, or £56,298, was devoted to Veterinary Services, of which £22,099 was expended on veterinary research. This distribution of the Department's funds demonstrates the relative importance of veterinary science in the Colony. Although there has been much economising in veterinary expenditure in recent years due to general financial stringency, yet it is good to see even so much financial support given to our profession in a country in which pure agriculture forms a considerable share of the industrial interests. This favourable position has resulted in no small part from the fighting efforts for due recognition of our profession's share in the country's economic system by the pioneers of veterinary science there. Stordy and Montgomery put the profession in Kenya on a high basis a quarter-of-a-century ago, and their successors have managed to maintain it so since.

The report of the Deputy Director of Animal Industry, otherwise the Chief Veterinary Officer (Major Brassey-Edwards), covers all aspects of the livestock industry from disease control to the improvement of the quality of the animal population and its products. Unfortunately, the major infectious diseases like rinderpest, East Coast fever and pleuropneumonia continue to maintain a firm hold in many parts of the country, and some are even extending. This unsatisfactory position is attributed to a variety of circumstances connected with the difficult times through which the Colony has been passing in recent years. The number of outbreaks of rinderpest, for example, has increased by 100 per cent. in the settled areas, over those of the previous year. The outbreaks of East Coast fever in non-enzoötic areas during the three years 1932-34 exceeded those of the previous three years by 100 per cent. There were four outbreaks of contagious bovine pleuropneumonia in settled areas during the year as compared with three in the previous year. The following table gives a concise exposition of disease incidence in the five years 1930-34:—

Disease	1930		1931	1932	1933	1934
Rinderpest	30	outbreaks	29	61	35	68
East Coast fever ...	33	„	33	76	109	83
Pleuropneumonia ...	3	„	1	1	3	4
Blackquarter	93	„	104	54	56	58
Trypanosomiasis ...	12	„	10	8	12	3
Foot-and-mouth disease	44	„	20	21	20	26
Horse sickness ...	20	„	19	11	12	14
Equine lymphangitis	11	„	3	15	5	15
Contagious bovine abortion	8	„	29	16	13	19
Swine fever	3	„	4	1	—	4
Anthrax	23	„	25	25	41	29
Rabies	—	„	1	23	22	11

Some 24 more infectious diseases are stated to have been in existence, so that it is little wonder that the existing depleted staff finds it difficult to maintain a reasonable state of control of these various diseases in a country which abounds with difficulties for the proper administration of disease suppression.

The report of the Chief Research Officer (Mr. Daubney) contains, as usual, much interesting information on research into tropical diseases. The laboratory at Kabete is, next to the South African Institute at Onderstepoort, the main centre of research into diseases of animals in Africa, and its present staff are making good progress with several important problems. A further test on the duration of immunity to rinderpest following vaccination with formalinised spleen virus indicated that complete protection lasts for at least two-and-a-half years when three doses of 10 c.c. of the vaccine are given to adult cattle, but a similar vaccination of calves at two months old did not protect for this period. The test was part of a general experiment into the immunity from inactivated-virus vaccination which has been in operation for some years. The advantages of this inactivated vaccine, should it prove successful in protecting animals for a prolonged period, make the control of rinderpest much simpler. Other experiments on rinderpest are recorded also. A mouse-adapted horse-sickness virus of a neurotropic character showed no abatement of virulence for horses at the sixty-fourth passage in mice. This investigation is being conducted in South Africa, as well as in Kenya. Various experiments into other diseases are described, but space does not allow reference to them here. Separate publications of some of these are promised.

W. K.

CITY OF DUBLIN

Veterinary Department

Report of the Chief Veterinary Inspector for the Year 1935

The work of the Veterinary Department is included under five heads: Milk Inspection; Meat Inspection; Duties under the Diseases of Animals Acts; Bacteriological Laboratory; and Attendance on Livestock, the property of the Corporation.

There are approximately 5,700 cows housed in the city during the winter months on the premises of 311 producers. In most British cities country-produced milk has been steadily replacing the town-produced article during recent years and, whilst it is probable that a similar change is occurring in Dublin, the rate of substitution appears to be proceeding much more slowly than in the cities in England and Scotland. The routine inspection of dairy stock, which is carried out at intervals of approximately one month, led to the discovery of 414 suspect cows. It is presumed that these animals were "suspect" of tuberculosis, but the report might with advantage have indicated more clearly the reasons for suspicion.

In addition to a public abattoir, there are 62 private slaughterhouses in commission in the city and more than 50 per cent. of the food animals slaughtered in the city pass through the private slaughterhouses. The large number of private slaughterhouses must very materially add to the cost and labour of supervision and probably the city officials would agree that they are a hindrance to the efficiency of the work of meat inspection.

It is noted that 12·64 per cent. of pigs slaughtered were affected with tuberculosis. This is a high incidence and such as is commonly found where a close association exists between dairying industries and pig-keeping. Possibly, in this connection, a little follow-up work might disclose interesting information and lead to the adoption of measures likely to reduce the incidence.

There were 35 outbreaks of sheep scab in the city during 1935, and it is not surprising to observe that there were a number of prosecutions for breaches of the Sheep Scab Order, since it seems fairly obvious that neglect of their obligations under the Sheep Scab Order, on the part of some sheep owners, must have been a factor contributing to the large number of outbreaks.

The report includes a series of tables which clearly summarise the large volume of work carried out by the department under the different heads of its responsibilities.

N.V.M.A. Divisional Reports

VETERINARY MEDICAL ASSOCIATION OF IRELAND

PROVINCIAL MEETING AT DROGHEDA*

A general meeting of the Veterinary Medical Association of Ireland was held on June 26th, 1936, at Harpur House, Drogheda, by the kind invitation of Mr. and Mrs. A. A. Donnelly.

The following members were present: Messrs. H. O'Leary (President), A. A. Donnelly, P. F. Dolan, Professor J. J. O'Connor, J. S. MacCann, S. Conway, W. E. MacDonald, Gerald A. Morrin, M. Donohoe, O. D. Neary, M. J. Byrne, Sean O'Donovan, D. Reeves, Professor W. Kearney, Messrs. A. F. O'Dea, F. A. Heney, J. J. Lyons, F. J. Daly, J. A. Colleran (visitor) and J. M. Murphy (Hon. Secretary).

Apologies for non-attendance were received from Messrs. Condon, Tipperary; Staples, Wexford, and J. D. Whitty, Department of Agriculture.

The meeting was preceded by a visit in the afternoon to Captain Boylan's high-grade-milk-producing farm at Hilltown, Drogheda. Here the members were received by Captain and Mrs. Boylan. Messrs. P. F. Dolan and A. A. Donnelly explained the working of the plant and the procedure adopted. All the members present were delighted with their visit and gained much knowledge therefrom. Before leaving, the members were entertained to tea by Captain and Mrs. Boylan to whom our President proposed a hearty vote of thanks for the hospitality shown. Captain Boylan suitably replied.

The members then proceeded to Mr. Donnelly's home, Harpur House, Drogheda, where the second portion of the proceedings took place.

Here the members were received and very hospitably entertained to tea by Mr. and Mrs. Donnelly. After tea the meeting was held in their drawing room.

Business Proceedings

The minutes of the previous General Meeting held at the Veterinary College, Dublin, on May 5th, 1936, were read, confirmed and signed.

Correspondence.—From the South African Veterinary Medical Association, stating that within recent years there appears to have been an increase in roaring and whistling in thoroughbred horses bred in that country and that it is considered by some veterinarians that this increase may be due to the importation of sires suffering from roaring. The letter also asks for an opinion as to whether there are

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definite data here to prove that whistling and roaring are direct hereditary affections or whether they are symptomatic conditions following primary affections associated with high fever such as strangles, biliary fever, piroplasmosis, etc. The letter further enquires what attitude we take in the show ring towards breeding horses suffering from laryngeal affections.

It was decided that the following three members meet and formulate a reply to this letter: Professor O'Connor, Mr. H. O'Leary and Mr. J. E. Fitzgerald.

Report of Council.—A report of the Council meeting held at the Veterinary College on May 15th, 1936, was read and discussed. It was decided to send a reminder notice to the collectors appointed *re* Greyhound Charity Meeting at Shelbourne Park.

Arising out of the report of Council concerning the fee paid at Harold's Cross Greyhound Racing Track, the Hon. Secretary reported that he had again written to the management at Harold's Cross, that he had seen Mr. Crean and shown him the letter and that Mr. Crean was satisfied and was not prepared to withdraw his services.

Paper.—A paper was read by Mr. L. M. Magee, M.R.C.V.S., Dunboyne, entitled "Notes on Local Anaesthesia." The discussion was opened by Mr. A. A. Donnelly, Drogheda, and other members, including the following, also spoke: Professor O'Connor, J. S. MacCann, F. A. Heney, P. F. Dolan, and Professor W. Kearney. [The paper in question is published earlier in this issue.—*Editor.*]

Other Business.—A vote of condolence was passed with Mrs. Carroll on the death of her husband, the late Mr. T. J. Carroll, M.R.C.V.S., Pearse Street, Cavan, all the members standing.

A very hearty vote of thanks was proposed by the PRESIDENT to Mr. and Mrs. Donnelly for the delightful evening spent there and for their kind hospitality to the members. , Mr. O'DONOVAN seconded.

Before the members departed they were shown by Mr. Donnelly around his spacious premises including surgery, pharmacy, harness room, etc. These premises reflect great credit on Mr. Donnelly and, in the matter of cleanliness and tidiness, represented the ideal to be achieved in veterinary practice.

J. M. MURPHY, *Hon. Secretary.*

Included in the programme of a sessional meeting of the Royal Sanitary Institute to be held in the Guildhall, Norwich, on Saturday, October 17th, 1936, is a discussion on "Cultural Methods for the Isolation of Tubercle Bacilli in Milk" to be opened by Dr. T. Ruddock-West, Medical Officer of Health, Norfolk County Council.

HORSE SHOW GENERAL MEETING*

A general meeting of the Veterinary Medical Association of Ireland was held in the Veterinary College, Ballsbridge, Dublin, on Wednesday, August 5th, 1936, at 7.30 p.m.

The following members were present: Messrs. H. O'Leary (President), R. J. Nolan, W. E. McDonald, M. F. O'Sullivan, J. S. MacCann, F. Staples, J. D. Whitty, F. J. Daly, F. A. Heney, P. F. Dolan, J. E. Fitzgerald, J. J. Condon, J. M. Crowe, P. A. McCorry, A. F. O'Dea, M. J. Byrne, F. O'Leary, S. R. J. Cussen, S. O'Donovan, D. Reeves, P. E. Mullaney, W. Joyce, T. A. Mernagh, J. E. Kenny, F. S. Ringwood, T. H. Griffin, Miss D. Taylor, Miss H. Bisset, Messrs. L. M. Magee, P. J. Gaffney, Professor W. Kearney, Mr. J. F. Timoney and Mr. J. M. Murphy (Hon. Secretary). Mr. K. O'Sullivan was present as a visitor.

Apologies for non-attendance were received from Professor O'Connor, Messrs. J. J. O'Brien, P. J. Nolan, F. Crowne, P. McDonnell, P. McGlinchey, C. P. Hynes and E. W. Little.

The minutes of the previous general meeting held at Drogheda on Saturday, June 27th, 1936, were read, confirmed and signed.

PAPER.—Professor Kearney then read a paper entitled "Veterinary Research in the Irish Free State." The paper dealt with the amount of money spent on veterinary research here as compared with Great Britain and Northern Ireland and also the number of professional research workers and assistants. One thing was very apparent, and that is that we are in a deplorable state here as far as research is concerned—so much so, that Mr. J. F. Timoney, who opened the discussion, stated that the title of the paper should have been "Lack of Veterinary Research in the Irish Free State."

The paper provoked a very lively discussion, ably opened by Mr. Timoney, and it was generally agreed that the matter was of vital importance to the profession in the Irish Free State and that proper steps should be taken to have this paper published in the Press and also brought to the notice of "the powers that be." [Professor Kearney's paper is published, with a report of the discussion, at the commencement of this issue.—*Editor.*]

It was proposed by Mr. DOLAN, seconded by Mr. CUSSEN and passed unanimously, that the following resolution from this Association be sent to the Secretary of the Department of Agriculture, together with Professor Kearney's paper:—

> "At the quarterly general meeting of the Veterinary Medical Association of Ireland held on August 5th, 1936, the subject of veterinary research in this country was fully discussed, and it was unanimously

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agreed that the matter was in need of urgent attention; and since the Veterinary Profession is responsible for the health of the animal population, this Association has appointed a special committee to represent the Profession to confer with the Department of Agriculture with the purpose of instituting the necessary means to carry out veterinary research on an adequate scale within the shortest possible time. A copy of this resolution is being sent to the various livestock associations in the country."

It was proposed by Mr. J. E. Fitzgerald, seconded by Mr. Magee and carried unanimously, that a précis of this paper, together with some of Mr. Timoney's remarks, be sent to the daily Press and also to the various provincial papers and livestock journals.

The following committee was appointed to confer with the Department of Agriculture on the question of veterinary research: Mr. H. O'Leary, Professor Kearney, Mr. P. F. Dolan, Mr. J. F. Timoney, Professor O'Connor, Mr. A. A. Donnelly and Mr. J. E. Fitzgerald.

Correspondence.—A letter was read from Messrs. P. J. Nolan, F. Crowne and P. McDonnell, whole-time veterinary inspectors employed in Limerick under the Fresh Meat Act. These men, after six years' service, are still temporary and have failed, despite many attempts, to get themselves on the permanent establishment. They ask for the active support of the Association in helping to get them permanency. It was pointed out in this connection that a similar state of affairs exists in Dublin and Cork with the men who were appointed in 1930 under the Fresh Meat Act. After a very long and heated discussion on this matter it was proposed by Mr. O'Donovan, seconded by Mr. Dundon and passed unanimously, that this matter be referred to a special meeting of Council and that these men be invited to attend the meeting. The time of meeting was fixed for 8 p.m. on Saturday, August 15th, 1936, at the Veterinary College.

Report of Council.—A short report of the Council meeting held on July 17th, 1936, was read and approved.

Report of Committee Appointed to Enquire into the Grievances of Part-time Veterinary Officers and if necessary to appoint a deputation.—The report of this committee was read and, after some discussion, it was proposed by Mr. O'Donovan, seconded by Mr. Crowe and unanimously agreed, that this report be adopted.

It was proposed by Mr. Gaffney and seconded by Mr. Mernagh that a deputation be formed to interview the Minister for Agriculture. The following members were elected on the deputation: Messrs. Condon, Crowe, Magee, Daly, Alexander, McCorry, Gaffney, H. O'Leary (President) and J. M. Murphy (Hon Secretary).

A discussion took place as to whether this deputation should be an official one representing the Association or whether it should be a deputation of part-time men representing the part-time men only. It was proposed by Mr. Dundon and seconded by Mr. Dolan that a deputation be sent from the Veterinary Medical Association.

Mr. O'Donovan then introduced the following amendment, which was seconded by Mr. Kenny and, on a show of hands, was declared carried by a big majority:—

"That the August general meeting of the Veterinary Medical Association of Ireland approve of the report of the committee of enquiry into the grievances of part-time veterinary officers requesting a deputation to the Minister for Agriculture to make representations for better conditions of service under the following headings:—

(1) That the position of all part-time veterinary inspectors in the Irish Free State under the Diseases of Animals Acts should be made permanent, pensionable and retrospective.

(2) That a substantial increase on all present salaries should be demanded for all part-time veterinary inspectors in the Irish Free State.

(3) That a fee of £1 1s. be paid for every *post-mortem* under the Tuberculosis Order."

Messrs. Condon, Crowe, Magee, Daly, Alexander, McCorry, Gaffney, H. O'Leary and J. M. Murphy were appointed as members of the deputation.

Other Business. *New Members.*—Mr. Kerry O'Sullivan, proposed by Mr. J. M. Murphy, seconded by Mr. H. O'Leary; Mr. Hugh N. Spears, proposed by Mr. M. J. Byrne, seconded by Mr. A. F. O'Dea.

The following committee was appointed to take charge of the running of the Greyhound Charity Meeting at Shelbourne Park: Messrs. F. O'Leary, H. O'Leary, P. E. Mullaney, T. G. Browne and J. M. Murphy.

J. M. Murphy, *Hon. Secretary.*

TUBERCULIN TESTED MILK

The Tuberculin Tested Milk Producers' Association at a recently held general meeting passed a resolution describing as inadequate the terms for the inclusion of tuberculin tested milk in the Milk Marketing Scheme. It was agreed that, if the Executive Committee were unable to obtain better terms from the Board, the Ministries of Agriculture and Health be requested to hold an inquiry into the cost of production of tuberculin tested milk and its supply before making an order bringing it into the Milk Marketing Scheme.

LANCASHIRE VETERINARY ASSOCIATION*

SUMMER MEETING AT PRESTON

The Annual Summer Meeting of the Lancashire Division was held at Preston on July 16th, 1936.

Luncheon, held at the Bull and Royal Hotel, Preston, was attended by a large number of members and their friends, amongst whom were the following: Mr. and Mrs. C. F. Shawcross, Mr. and Mrs. G. H. Locke, Mr. and Mrs. J. O. Powley, Mr. and Mrs. H. D. Heggarty, Mr. and Mrs. C. T. Trevers, Mr. and Mrs. W. Kendrick, Mr. and Mrs. A. L. Mullen, Mr. H. G. Hewetson, Messrs. R. S. Howe, W. Walker, J. Birtwistle, A. J. Wright, J. C. Baird, J. Brennan, C. W. Pembrey, G. O. Davies, W. Fowle, R. Finch, R. C. Locke, J. Adamson, Junr., and a number of friends. Later attenders were Messrs. A. H. Leyland, G. C. Marginson, J. C. Marginson, A. B. Mattinson, E. J. Burndred and J. Mackay.

Apologies for inability to be present were received from Messrs. J. Holroyd, G. Mayall, R. Hughes, A. B. Kerr, H. T. Matthews, E. H. Curbishley, H. R. Hewetson and J. W. Wilson.

Mr. J. J. Green, Director of Agriculture, Lancashire County Council, was a guest of the Association to lunch.

Following luncheon, arrangements were made for the ladies to proceed by motor coach to Blackpool for the afternoon.

Business Meeting

A short business meeting was held at the hotel, Mr. C. F. Shawcross occupying the chair.

The minutes of the previous general meeting were taken as read.

Correspondence.—Letters of resignation from membership of the Association were read from Messrs. H. A. Turner, of Manchester; A. Alexander, of Salford; and F. W. Priestley, of Manchester; in each case owing to change of appointment and residence. They were received and accepted with much regret.

Election of New Members.—The following were unanimously elected members of the Association: Messrs. J. Cubby, Alderley Edge; C. Jones, Northwich; J. W. Wilson, Preston; Mr. J. Holroyd, Junr., Blackburn, a student member, was elected to ordinary membership of the Association.

Any Other Business.—The Hon. Secretary was instructed to write to Mr. J. Holroyd, of Blackburn, and convey the sympathy of the members and wishes for a speedy recovery from his recent illness.

Demonstrations, etc., at Hutton

By kind permission of the Lancashire County Council Education Department, members of the Lancashire Division were invited to attend an afternoon of demonstrations, talks, and general inspection of buildings and equipment at the Agricultural College, Hutton. Mr. J. J. Green, Director of Agriculture, kindly arranged for members of the College staff to give short talks and demonstrations in each section of the College activities. A most instructive afternoon was accordingly passed in which no effort was spared to provide something of educational interest in each section.

Dairy.—Miss Stubbs gave a very complete demonstration and talk in this section, and the butter and cheese-making unit, cold storage plant and various apparatus associated with the handling and manufacture of milk products were inspected.

Milking Shed, Milk Production and Shippons.—This section was of particular interest to the visitors. Mr. J. J. Green conducted the party round and explained each process in the operation of the plant. The latter consisted of the recently-installed milking shed with its ten-unit Alfa-Laval, auto-recording set, washing stalls, etc. The members had the opportunity of seeing the plant in operation as routine milking was then in progress. Each step in procedure could be plainly seen from a special glass inspection chamber overlooking the shed.

Danish Type Piggery.—Mr. J. Andrews, farm manager, gave a most informative talk on the various points emerging from the methods of pig rearing, management and feeding adopted on the College farm. A good discussion arose between the members and demonstrator.

Dairy Bacteriology.—Dr. Burgess, a dairy bacteriologist, demonstrated the various tests in the examination of milk. By special request the methylene-blue test was demonstrated.

Poultry Unit.—Mr. G. C. Marginson, M.R.C.V.S., D.V.S.M., of Preston, gave an exceedingly practical demonstration of the caponising of poultry. A large number of birds was available for demonstration and members were given an opportunity of carrying out the operation individually.

Votes of thanks to Mr. Green and his colleagues were proposed by Mr. R. Finch, seconded by Mr. C. F. Shawcross and passed with acclamation by the members present.

The members, visitors and their friends were afterwards entertained to tea at the Metropole Hotel, Blackpool, by Mr. C. F. Shawcross (President) and Mrs. Shawcross.

A. L. Mullen, *Hon. Secretary.*

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The Minister of Agriculture has appointed Mr. N. L. C. Macaskie, K.C., to hold the public inquiry into objections made to amendments of the Milk Marketing Scheme. The inquiry will be opened on Monday, October 26th, and it is expected that it will be concluded within two or three days.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Oct. 5th.—N.V.M.A. Committee Meetings, at 2, Verulam Buildings, Gray's Inn, W.C.1. Organising Committee, 2 p.m.; Veterinary Officers' and Public Health Committee, 3 p.m.; Parliamentary Committee, 4.30 p.m.; Joint Meeting of the Veterinary Officers' and Public Health Committee and the Parliamentary Committee, 5 p.m.

Oct. 6th.—N.V.M.A. Committee and Council Meetings. Committee Meetings at 2, Verulam Buildings, Gray's Inn, W.C.1. Appointments Committee, 10 a.m.; Committee to make Nominations for Standing Committees for 1936-37, 10.45 a.m. Council Meeting at the Connaught Rooms, Great Queen Street, W.C.2, at 2.30 p.m.

Oct. 7th.—First Meeting of the British National Committee for the Thirteenth International Veterinary Congress, at 2, Verulam Buildings, Gray's Inn, W.C.1, 10 a.m.

Oct. 7th.—Meeting of the N.V.M.A. Committee on Free Services, at 2, Verulam Buildings, Gray's Inn, W.C.1., 11.30 a.m.

Oct. 8th.—Annual General Meeting of the Central Division, N.V.M.A., at the Royal Veterinary College, Camden Town, N.W.1, 6.30 p.m.

Oct. 8th.—Meeting of the Lincolnshire and District Division, N.V.M.A., at Lincoln, 2.30 p.m.

Oct. 9th.—Meeting of the Sussex Division, N.V.M.A., at Brighton, 2.30 p.m.

Oct. 9th.—General Meeting of the Mid-West Division, N.V.M.A., at Trowbridge, 2.15 p.m.

Oct. 12th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, 4 p.m.

Oct. 17th.—Meeting of the Executive Committee of the Scottish Branch, N.V.M.A., 12 noon; meeting of the Scottish Branch, 2.30 p.m.—both at the Station Hotel, Dumfries.

Scarborough Congress Number

The next issue of the *Veterinary Record* (October 10th) will be an enlarged and illustrated number devoted to the proceedings of the highly-successful Congress held at Scarborough from September 14th-18th by the National Veterinary Medical Association. Application for additional copies (price 1s. post free) should be made to the Editorial Representative, N.V.M.A., 2, Verulam Buildings, Gray's Inn, W.C.1.

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PERSONAL

Colonel W. A. Wood's Retirement

Announcement is made of the retirement, on reaching the age limit, of Colonel W. A. Wood, *C.B.E.*, M.A., M.R.C.V.S., from his post in the Institute of Animal Pathology, Cambridge, where, from the inception of this work at the Institute, he has been responsible for the diagnosis of parasitic disease in domestic animals and poultry, and the giving of advice on treatment and prevention.

We understand that Colonel Wood, who is now living at 4, Barlon Square, Ely, Cambs., intends to continue this work, in a laboratory which he has equipped there, in a private capacity.

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Marriage.—Ingram—Williams. On September 10th, 1936, at St. Mary's Church, Ware, John McConnachie Ingram, M.R.C.V.S., only son of Mr. and Mrs. J. Ingram, of Huntly, to Hazel Evelyn Ure, only daughter of Mr. and Mrs. Frank Williams, of Ware, Herts. Mr. Eoghan Clark, M.R.C.V.S., D.V.S.M., Banstead, Surrey, officiated as best man. The bride is a niece of Mr. A. H. Andrew, M.R.C.V.S., and Mrs. Andrew, of Ware, Herts.

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Legal Notes

ALLEGATION THAT PASSED HORSE WAS A "ROARER"

Failure of Claim for Damages for Negligent Examination

Five veterinary surgeons gave evidence at Malmesbury County Court, on September 19th, when John McIntyre, farmer and horse dealer, of Velhurst Farm, Alfold, Sussex, claimed £70 for negligence against Major Robert Tindle, veterinary surgeon, The Firs, Little Somerford, who counter-claimed £4 4s. fees.

Judge Kirkhouse Jenkins, who listened to the case for six hours, found for Major Tindle on the claim, and held that he was entitled to recover the fees referred to in the action. He also granted him two experts' fees, and awarded him judgment on the counter-claim, there being no costs by agreement.

Mr. Harold Willis was counsel for Mr. McIntyre and Mr. W. T. Doyle for Major Tindle.

Mr. McIntyre, a farmer and horse-dealer, said he went to Standlake in Oxfordshire, in May, to see a horse owned by a Mr. Saunders. Subsequently he agreed to buy the horse for £70 subject to a veterinary certificate and suggested Major Tindle for this purpose. The latter examined the animal on May 29th and later sent a certificate of soundness.

After taking the horse, plaintiff formed the opinion that the horse was not sound and called in Captain J. A. Craft, who concluded that it

had gone in its wind and was a "roarer." This opinion was confirmed by a Mr. Fowler, veterinary surgeon of Hazlemere.

Professional Evidence

Captain J. A. Craft, M.R.C.V.S., of Cranleigh, Surrey, said he examined the horse in the box and then had him cantered round in a figure of eight. He noticed the noise and when he pressed his ear to the larynx he detected considerable roughness. He found a raucous noise in the nostril, as if the horse was breathing through a hollow chamber. He had the horse galloped fast, but he had to stop it because he was rather afraid the horse would pitch from partial suffocation. He listened to the horse's heart and there was a definite heart murmur. He tried the animal for grunting with his fist and there was definite evidence of pain.

Captain Craft was present at the examination made by Mr. Male on July 20th. The horse did not grunt so much as when he examined it himself and its wind had improved, but was still very bad. Noises were not so definite, but in his opinion the horse was definitely unsound. Mr. Male would not agree with him as to the condition of the wind.

Captain Craft said that, in his opinion, the horse was permanently in a state in which he found it and that the condition would be progressive.

Answering the judge, he said that roaring was a disease of the larynx which started with whistling and went on to roaring. He thought the roaring, apart from being due to paralysis of the larynx, was also due to a roughness of the air passage. The horse had a thickening of the mucous lining of the upper air passages.

The Judge: I want to know whether the condition which he found on July 20th or June 24th would have existed before May 29th.

Captain Craft: I am of the opinion that it existed, possibly in a less aggravated form.

The Judge: For what period antecedent to May 29th?—It may have been an illness of six or eight weeks' duration.

Captain Craft did not agree with lunging a light horse. It was not enough. It was often necessary in the examination of hunters to gallop horses five, ten or fifteen minutes before they could get them to make a noise, and they would not do that on a lunging rein, because they could not "get steam out of them." Witness saw nothing wrong in the action of taking the horse from Oxfordshire to Velhurst without rugs on him.

Captain Arthur Fowler, M.R.C.V.S., stated that when he examined the horse he detected roaring. The horse was unfit, and in such cases one got a soft noise as well as a hard roaring noise.

Answering counsel for Major Tindle, he said his opinion was that the roaring would have been evident had the Major ridden the horse.

Major R. Tindle, M.R.C.V.S., said that when he saw the horse he formed the opinion that the animal was unfit to ride. Had he ridden it, the horse would have been exhausted and he might have been thrown. He considered it would be madness to saddle and girth a young horse that had not been ridden for some time. "My time would be fully occupied in sticking on his back, not listening to his wind," he added. He lunged the horse right and left for 15 minutes. It galloped, kicked, reared and plunged in every direction, and during this operation he heard not the slightest sound of wind trouble. There was no sign of abnormal breathing. At that time the horse was not a whistler or a roarer. He took the horse's pulse before the animal was taken out and it was normal, and the same applied after the gallop. He put the horse in the box and left him for 20 minutes, and when he examined the animal again, the respiration was normal and the heart all right. When he saw the horse on September 4th it had lost a lot of condition and was quite a different horse. The glands were distinctly swollen, but the heart was absolutely right. He rode the horse and galloped him, but could detect no whistling or roaring. There was a slight thickness.

In reply to the Judge, who asked what he thought the horse's state of health was that day, Major Tindle said, "He was recovering from an illness."

Cross-examined by Mr. Willis, he would not agree that lunging was not as satisfactory as riding. The horse, he added, was too fat to be ridden. It was not in a fit condition to be galloped in the saddle; he considered it would have been a great strain on the horse's heart. He saw no sign of strangles or of a wound.

Mr. Willis: What I suggest is that on May 29th it was suffering from defects which made him a roarer?—This horse was not a roarer.

Mr. George P. Male, M.R.C.V.S., spoke to having examined the horse on July 20th. He noticed swelling of the glands and some mucoid discharge from the nose. He took the animal's temperature and it showed a slight rise.

Mr. Male said he found the heart quite sound. When Mr. McIntyre was riding the horse there was a noise. In his opinion the horse was convalescing from catarrhal fever and laryngitis. There was no evidence of whistling, but he would not have given a definite opinion on the point at the time. The farther the horse galloped the less the noise became. At the last gallop there was no noise at all. There was no evidence before him of whistling. He judged the whole condition was due to laryngitis. Lunging a horse was, in his opinion, a satisfactory way of testing a horse for its wind. "I think he was a fit horse on May 29th," said Mr. Male.

The normality of the horse's heart was also referred to by Mr. Charles Haywood, M.R.C.V.S., of Leicester. The horse was neither a whistler nor a roarer, nor was it broken-winded. He examined the horse as recently as September 15th and found it had improved in condition. It rode better and what noise there was before was barely perceptible on this last occasion.

Sir Frederick Hobday, C.M.G., F.R.C.V.S., who was referred to as a specialist on the "roaring" operation, said that on September 4th he would have been prepared to have certified that the horse was not suffering from paralysis of the larynx. He heard a soft noise just like a horse out of condition.

Referring to the possibility of infection in the trailer, Sir Frederick said it was difficult to disinfect vehicles.

In his address Mr. Doyle said, "Attacks should be made upon the reputation of professional men only when there is at any rate some reasonable ground for believing they may succeed. Whichever way it turns out it must be one of those unfortunate days for defendant, because he is a veterinary surgeon practising in a hunting country, and no reputation is more fragile than that of a veterinary surgeon working under these conditions. This is a case which has been brought against Major Tindle on the flimsiest evidence."

Mr. Willis contended that plaintifl was fully justified in bringing the case. All professional people's reputations were dear to them, but that did not mean that in a proper case an action should not lie.

At the outset of his summing up the Judge said he had already intimated to counsel that he meant to decide the case on the evidence regardless of any consequences to defendant or plaintiff. He found that on May 29th the horse was not suffering from paralysis of the larynx, and that Major Tindle acted in a way in testing the horse which was recognised by surgeons of competence and distinction who had been called before him that day.

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NATIONAL HORSE ASSOCIATION

Major H. Faudel-Phillips (President) occupied the Chair at a meeting of the Council of the National Horse Association held in London on Monday last when 126 new members, including H.R.H. the Duke of Gloucester, K.G., were elected. This brings the membership to well over the 1,000 mark.

It was reported that the new publication "Where and How to Ride In and Around London," produced under the Association's auspices, had met with phenomenal success, the demand for copies far exceeding expectations. Other editions will be issued shortly embracing the Southern Counties, the West of England, the Manchester and Liverpool area, the North of England and Scotland and the Midlands. It was stated also that arrangements are in hand for the 1937 edition of the Horse Owners' Reference Book, another publication much in demand. The new edition will be as comprehensive as those already published and organisers of all fixtures in which horses and ponies take part are invited to communicate the dates, etc., to the Association at 12, Hanover Square, London, W.1.

Imported Horses.—A most interesting report had been received from Major James Paterson, of the well-known firm of Messrs. Carter, Paterson and Company, regarding the suitability of Polish and South Russian horses imported into this country. This indicated that, in the general opinion of purchasers, if the surface worked upon is hard and the pace fast, the animals have not the lasting qualities of British-bred stock. The imported animals are of hardy constitution and are tempermentally docile, their weak point being that their bone is not so hard as that of British-bred stock, so that concussion renders them much more liable to ring- and side-bone, navicular disease and secondary troubles.

In connection with imported horses generally, it was reported that the Import Duties Advisory Committee were nearing completion of their investigation into the question of a duty, so that their recommendations would soon be known.

Regarding the Association's offers of medals at country shows this year, some 48 silver medals have been offered in children's riding classes, 20 silver medals for the best prepared foot under the shoeing scheme, with 12 silver and bronze medals for best shod animals.

Horse Transport in London.—A report was approved in connection with the action taken by the Association in opposition to the Minister of Transport's proposal to restrict the use of certain streets to other than horse-drawn traffic. The Association is in touch with 91 societies interested in the use of the horse and upwards of 4,000 communications have been made. The Minister has agreed to receive a deputation representing the Association and the National Farmers' Union upon a date yet to be determined. Valuable expressions of opinion have been forthcoming from many firms and individuals, and especially from the Society of Coal Merchants and the Gas Light and Coke Company. These important organisations had expressed views which would be submitted to the Minister. The Gas Light and Coke Company were very much concerned at the effect which would be caused to their coke delivery services, while the Society of Coal Merchants had suggested that the price of coal would be affected if their members had to undertake the purchase of expensive and, in their opinion, unnecessary motor vehicles. There was also the question of the hardship which would be caused to many drivers of horse vehicles who, being unfitted for other work, would be thrown out of employment.

Bravery Awards.—Under the Association's scheme for recognising bravery in attempts to save the lives of horses, the issue of certificates to various police constables and private individuals was authorised. The cases related to rescuing horses from burning stables and stopping a runaway at great risk to life and property.

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SHIRE HORSE SOCIETY

The council of the Shire Horse Society was informed at its last meeting that the King had consented to become patron of the society. The names of 100 new breeders were added to the membership roll, making 175 so far this year. The number of animals accepted for registration in Volume 58 of the Stud Book to date was 286 stallions (against 251 last year) and 938 mares and fillies (820 last year). At the fifty-eighth annual show, to be held at the Royal Agricultural Hall on February 2nd to 4th, there will be seven classes for stallions, seven for mares, and four for geldings, and four classes for commercial horses. The young farmers' judging contest will again be held. The Minister of Transport's proposal to restrict the use of streets in Central London by horse-drawn traffic was considered by the council to be a grave encroachment on the rights of horse-owning citizens, and one which would have a damaging effect on the horse-breeding industry. A sub-committee was formed to interview the Departments concerned.

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ARMY VETERINARY SERVICE

London Gazette—War Office—Regular Army

September 29th.—Lieut. I. H. Chalmers resigns his commission. (September 28th.)

Regular Army Reserve of Officers

Lieut.-Colonel J. R. Hodgkins, D.S.O., F.R.C.V.S., having attained the age limit of liability to recall, ceases to belong to the Reserve of Officers. (September 29th.)

Territorial Army

Sept. 11th (*Amended Notice*).—John Carr Bennison (late Offr. Cadet, Univ. of Lond. Contgt., Sen. Div., O.T.C.) to be Lieut., Sept. 5th, 1936.

Supern. for Serv. with the O.T.C.—Capt. J. N. Ritchie, from Gen. List, T.A., O.T.C., to be Capt. with seny. Feb. 19th, 1930, for serv. with R. (Dick) Vet. Coll. Contgt., Sen. Div. (July 31st); Sec. Lt. W. MacG. Henderson, from Gen. List, T.A., O.T.C., to be Lt., with seny. Jan. 31st, 1935, for serv. with R. (Dick) Vet. Coll. Contgt., Sen. Div., O.T.C. (July 31st).

RUBBER BOOTS AS PROTECTION AGAINST FOOT-ROT

Rubber boots for sheep were demonstrated for the first time at Wye College, Ashford, Kent, on Saturday last. The boots, manufactured by the Dunlop Rubber Co., Ltd., are designed to hold foot-rot dressings in position, and to safeguard injured or diseased feet against dirt and poisoning. The demonstration was given by Professor Sir Frederick Hobday, and was witnessed by representatives of the Ministry of Agriculture and leading sheep farmers.

Attenders were informed that tests carried out over the past six months show that, when the boots are used, foot-rot can be completely cured in a week and, normally, only one or two dressings are necessary. These experiments, which culminated in the demonstration, were said to mark a striking advance in the scientific treatment of disease among cattle.

The boots, which are made in the Dunlop footwear factory at Walton, Liverpool, are of rubber and are therefore waterproof and pliable. The rubber is acid-proof and evidence of how it stands up to the chemicals used in dressings was found in the samples shown on a table in a corner of the demonstration field. These had been in soak since September 13th in solutions of copper sulphate, 5 per cent., and butter of antimony and it was noted that they remained unaffected.

Built to fit the sheep's feet closely, the boots have an inward curve at the top of the horn structure to reduce the splashing of dressings on the leg; an outward curve to give the fetlock joint free play and stop chafing; a bag at the back to give the "knuckles" freedom; stout soles which give to the tread; and narrow tops which grip the legs.

The boot is slit part of the way down the front and the foot is slipped into it behind a flap, which is then drawn back into position and the boot is fastened with a press fastener and a lace hole or with a zip. The boots are made in five sizes, three of which cover 80 per cent. of the sheep in the country. They weigh an average of two-and-a-half ounces.

It is claimed that sheep wear the boots without noticing them. The boots cost either 3s. 6d. a pair (with zip) or 2s. 11d. After being cleaned and disinfected they can readily be used on one sheep after another.

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GRASS SICKNESS RESEARCH

The directors of the Scottish Chamber of Agriculture have agreed to support the petition asking the Highland Society to offer a premium of £1,000 to anyone who discovers the cause of and cure for the disease of grass sickness. The Chamber directors have also resolved to urge the Treasury to support the claims of the Animal Diseases Research Association for financial assistance in their investigation into the disease.

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VITAMINS AND HORMONES

"A sign of recent trends in biochemistry is given by the publication of a monograph of fewer than 100 pages with the comprehensive title *Vitamins and Hormones.** The work is written from the standpoint of the organic chemist, nearly half the text being occupied by complex structural formulae, and the interesting point is that from this aspect the vitamins and hormones can conveniently be considered together. Knowledge in both these fields has advanced in recent years with great rapidity, and to-day it is becoming evident that the normal functions of the body depend upon supplies of minute quantities of complex organic bodies. Some of these substances the body manufactures for itself, others it has to obtain ready-made, but the reason for this distinction seems wholly obscure. The human body cannot manufacture ascorbic acid, which is a simple aliphatic six-carbon compound, whereas it makes for itself the highly complex sterol compounds which constitute the sex hormones. In the well-known instance of calciferol it is a matter of chance, or rather of climate, whether the body is self-supporting or dependent upon imported supplies. Since the same substance in the one case must be considered a hormone and in the other case a vitamin, the distinction between the two classes is evidently very ill defined.

"The outstanding impressions derived from study of the short and condensed account given by Dr. Bredereck in this monograph are admiration for the skill of the organic chemist in unravelling the complex problems set him by Nature and amazement at the complexities that are being revealed. It is only a few years since the discovery that vitamin A was produced from the plant pigment carotene, but to-day there is a list of a dozen provitamins both natural and synthetic. The discovery that vitamin D was produced by irradiation of ergosterol is also a recent event, but to-day half a dozen products of the irradiation of ergosterol have been recognised; indeed it is still uncertain which is the chief active principle that occurs in cod-liver oil, though it is fairly certain that it is not calciferol. A similar development is taking place among some of the hormones. The outstanding example is that of the sex hormones. The monograph lists no fewer than 13 substances in the male sex hormone group and 17 in the female sex hormone group. All of these have the same complex ring structure, and in several cases the male and female hormones have almost identical structural formulae.

"The revelation of the way in which the functions of the body are regulated by chemical compounds may be looked upon as the most remarkable advance made in physiology during the present century, but the facts now being unfolded reveal a system that appears in the light of our present imperfect knowledge to be curiously irrational. Some of the most important agents such as adrenaline and acetylcholine are remarkable on account of their simplicity, while others—for example, vitamin A and the sex hormones—are of surprising complexity. Substances such as vitamins B_1 and B_2, which are similar enough in distribution and function to have long been confused with each other, have turned out to be utterly unlike in chemical structure. On the other hand, the distinction between male and female is one of the most fundamental in the animal kingdom, and yet the development of the typical characteristics of sex is dependent on the body not making a mistake as to the positions in a sterol ring on which a few methyl and hydroxyl groups are affixed. Our knowledge of this fascinating branch of organic chemistry is still in its infancy, and as it progresses it is possible that recognisable patterns may take shape, but at present the picture suggests the caprices of

**Vitamine und Hormone und ihre technische Darstellung.* Erster Teil. *Ergebnisse der Vitamin und Hormonforschung.* By Dr. Hellmut Bredereck. Leipzig: S. Hirzel. (1936.) (RM. 6.)

an exuberant creative spirit revelling in complexity for its own sake."—*British Medical Journal.*

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SOURCES OF INFECTION IN TUBERCULOSIS

The *British Medical Journal,* in a recent annotation, states that since the introduction of the method of examining the gastric contents for tubercle bacilli paediatricians in Holland have been startled by the number of positive results found among children apparently in good health. The annotation continues: "There has developed a tendency to regard all tuberculin-positive children as a potential source of infection, and some physicians have even gone so far as to demand separate schools, etc., for reactors and non-reactors. A special committee of the Dutch Society of Paediatrics therefore decided to investigate the percentage of infected children in whose environment an open source of infection (sputum-positive case) could be traced. In a recently published paper* R. M. Heynsius van den Berg describes the results of such an investigation carried out at the Central Dispensary in Amsterdam on 3,313 children found to be Pirquet-positive between 1930 and 1933. (It should be added that the Pirquet test at this dispensary, which serves the whole town, is carried out with special care and precautions, and gives results only slightly inferior to the Mantoux test.) The results were calculated for a standard group containing an equal number of children in each year of the first fourteen years of life. An open source of infection was discovered in 50·8 per cent. The remaining 49·2 per cent. might have been infected, according to van den Berg, by (1) unknown contact with a registered open case, (2) bovine bacilli, and (3) unknown sources. The last includes (*a*) open cases not yet identified; (*b*) cases considered sputum-negative but really 'open'; (*c*) children with tubercle bacilli in the gastric contents. Patients belonging to group (*a*) must be regarded as particularly dangerous, and van den Berg mentions that at Philip's factories at Eindhoven no fewer than 2·7 per cent. of the applicants for work were discovered by serial examinations to have an open tuberculous lesion. He brings forward evidence from the observation of B C G vaccinated children in tuberculous homes that group (*b*) is not a serious danger of infection provided the sputum is examined regularly. Nor does he regard children with positive gastric contents as infectious, on the following grounds: (1) the great importance in tuberculous infection of the number of tubercle bacilli expectorated (thus in the first two years of life among contact children in "favourable circumstances" 31·2 per cent. became infected and 2·3 per cent. died, as against 100 per cent. infected and 64·3 per cent. dead when there existed "massive" contact); (2) the difference in the curves of the Pirquet and Schick tests in child populations at different ages; (3) the results of Pirquet-testing the brothers and sisters of children with positive gastric contents. Of 94 such children 59 were the only child or had another open source of infection in their home; among the siblings of the remainder only 15·7 per cent. reacted to tuberculin at the age of 4—a low percentage. Another point is discussed in this paper. Are the open sources of infection traced more frequently in children who (*a*) are merely infected, (*b*) have tuberculous disease, (*c*) die of tuberculosis? A standard group was again used, and the sources of infection divided into domiciliary and extra-domiciliary. An open source of infection was discovered most frequently (55·9 per cent.) in Pirquet-positive children in good health; and the percentage of untraced sources (47·7 per cent.) was highest in those dying of the disease—nearly twice that among the first group. A possible cause of error is stressed here—the time during which the groups had been observed, which was not taken into account. Finally, van den Berg shows that when contact with an extra-domiciliary open source leads to infection the effect is not more serious than when it is caused by contact in the home (as claimed by Redeker): contact with an open case in the home leaves 35·7 per cent. of the standard group non-infected as against 62·3 per cent. when contact is with an extra-domiciliary open case. The after-effects of an unknown source appear from the figures to be even more serious, but this is explained by the fact that all the contacts of such a case are not examined, only the more important results of the infection reaching the dispensary."

* *Maandsch. v. Kindergeneeskunde.* 1936. v. 133.

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THE DISCIPLINE OF CLINICAL MEDICINE

Appearing under the above heading, a leading article in the *British Medical Journal,* of August 15th, reads as follows:—

"General Smuts has conveniently summarised a prevalent philosophic tendency in the word 'holism.' The same tendency is expressed in Adler's 'individual psychology.' Under the title of 'The Discipline of Clinical Medicine' Dr. F. M. R. Walshe has applied the principle not to a branch but to the whole of medicine.* The occasion of his lecture added point to his already pungent arguments, for it was delivered before the students of the Cambridge University Medical Society, surrounded by laboratories where of necessity the analytic, rigidly controlled experimental method prevails. By no means overawed by these frowning fortresses of the 'fundamental' sciences, he carried his flag into the heart of their country, treating 'science for the sake of science' as a slogan as outmoded as 'art for art's sake.'

"Belligerence apart, there was much in his lecture of a constructive sort, helpful not only to general practitioners in the making, but also to hospital physicians, who are apt to be browbeaten into a feeling of inferiority by exponents of 'pure' science. All clinical teachers know the bewilderment which the student emerging from the study of anatomy and physiology experiences on entering the crowded out-patient department of a large hospital. He feels, as Dr. Walshe says, that 'he has entered a world where facts seem no longer the masters of the situation, a world in which an arbitrary selection of unverified and often fantastic details has become the accepted substitute for controlled observation and logical inference.' But then 'he begins to feel that there is scope for his judgment, and something to sharpen his wits on.' The difficulty is usually greater in those who have served the longest apprenticeship to the biological sciences. 'They have been taught to tidy up reality by cutting it up into convenient bits and dealing with each bit separately. But now they have to take reality in uncouth lumps and to grapple with nature's incredibly dirty and complex experiments. They cannot always

* *University College Hospital Magazine,* March-April, 1936.

measure, they cannot verify, they are thrown back upon their judgment, and this has never been trained.'

"The application of the rules of clinical medicine is a matter of trained judgment, but it necessarily rests upon careful observation and is therefore a logical process. The practical clinician has to learn to recognise states of disease by something less than a complete study and inventory of all its components; for he has to deal with urgent human needs. What Dr. Walshe is not prepared to admit is that this essentially synthetic task is so different from the analytic method of the scientist that it must necessarily unfit the clinician for scientific investigation. There is an art and a science of medicine each with their distinct methods, and while he agrees that a man busily engaged in the practical art may be ill-placed to engage also in scientific research, he maintains that there is nothing in the nature of things to unfit him to undertake both, as has been asserted. He illustrates this contention by Babinski's discovery and explanation of the extensor response, which added to physiological knowledge by extending Sherrington's observation to the human subject, which no one but the clinician could have done, for with him rests the last step in the application of knowledge derived from animal experiment. Sir Archibald Garrod wrote of the debt of science to medicine, and this is no paradox. The first intimations of the functions of the thyroid, pituitary, and adrenals came from the bedside. Empiricism has often won therapeutic success which had to wait long for scientific explanation. Yet the empirical method has always been suspect by the laboratory, though it is a procedure by trial and error just as the experimental method is; we might add, unfairly suspect when one remembers that cod-liver oil was used for many years, to the scorn of the experimentalist, until vitamins were discovered and he scoffed no more.

"We have, however, two criticisms to make on Dr. Walshe's vigorous and entertaining polemic. Starling maintained that no branch of science, faithfully followed for its own sake, failed eventually to throw light on practical problems—of which Gaskell's work on the heart and the sympathetic nervous system is an outstanding example. And Starling, though a stalwart of the laboratory, always recognised that the deliberately simplified conditions of experiment could not be safely applied to clinical work without correction. Knowing the moves in chess, he would say, 'did not of itself make one a good chess player. He instanced the extraordinary checks and counter-checks in the regulation of blood pressure in health and disease which reduce much of its mechanical investigation in the laboratory to a mockery. This illustrates a type of mind in the pure scientist which is less uncommon than Dr. Walshe seems to have found it, and we think that an increasing number of them are realising that the laboratory is not enough. Certainly, in the various discussions on the reform of the curriculum, the anatomist and physiologist appeared to welcome the illustration of the principles they wished to inculcate by the demonstration of patients.

"We agree, however, that anyone who tries to build a wall between the laboratory worker and the clinician does a singular disservice to both, and that clinical science, as Sir Thomas Lewis has forcibly maintained, has a status of its own, equivalent to those of other sciences. And we find ourselves in cordial agreement with the lecturer's closing remarks. What does the discipline of medicine offer to those who submit themselves to it? The practice of an art which makes the fullest demands upon both intelligence and character; the common sense that it confers on those who follow it unselfishly, which is a valuable asset to any scientific investigator; the fullest scope for the man bent on scientific research. Finally, apart altogether from these rich and varied intellectual satisfactions, it offers those satisfactions to the soul which the physician may enjoy as the servant of the community and those contacts with his fellow-men which no other occupation offers in like measure. 'Science for the sake of science' is a cold, dehumanised ideal that cannot for long satisfy the aspirations of the complete man. 'In short, who follows medicine embarks upon a noble adventure and need not bow before anyone—in the house of science or elsewhere.'"

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An early removal of sheep scab restrictions is expected in the Upper Teesdale and Howes districts of Wensleydale, following the examination of all flocks in the area. No trace of sheep scab has been found.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The views expressed in letters addressed to the Editor represent the personal view of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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INFECTIOUS LARYNGO-ENTERITIS OF CATS

To the Editor of the Veterinary Record

Sir,—In your issue of September 26th I notice, amongst the abstracts, a paragraph on infectious laryngo-enteritis of cats. I am sorry to say that this trouble is not confined to Germany as I have seen five or six cases of it here lately. Three of the four cases were adult Siamese males and the fourth an adult male tabby. All those four went home apparently cured, but one of the Siamese was reported as having died, or been found dead a few days later. The laryngeal symptoms were very marked and so were the diphtheritic. The loss of appetite seemed to me to be due in all cases to inability to swallow rather than to anorexia. All had a high temperature at first (104°, 105° and 105·5°) which fell when a brisk laxative acted. I found swabbing the throat and fauces with a chlorate of potash solution and forcible feeding, when absolutely necessary, to be effective. Cats when sick like to be let alone as much as possible and for a couple of days do very well without food. Only in a few of my cases did the enteritis develop markedly.

The above notes may interest some of your readers.

Yours faithfully,

E. C. Winter, F.R.C.V.S.

Northcote,
152, Heene Road,
Worthing.

September 27th, 1936.